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The Impacts of Fear and Uncertainty of COVID-19 on Environmental Concerns, Brand Trust, and Behavioral Intentions toward Green Hotels

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Abstract: This study aimed to investigate the impacts of COVID-19 on the hospitality industry. We examined the interplay between consumers' fear and uncertainty of COVID-19, their trust in green hotel brands, and their behavioral intentions in relation to staying at green hotels. Analysis of 613 completed responses to a survey instrument revealed that fear and uncertainty of COVID-19 have increased consumers' environmental concerns and green hotel brand trust, which in turn have promoted their willingness to pay more and willingness to make sacrifices to stay at green hotels. The paper contributes to research on green consumption behavior in the hotel industry during the COVID-19 pandemic.

Keywords: COVID-19; environmental concerns; green hotel consumption

1. Introduction

The ongoing coronavirus disease 2019 (COVID-19) pandemic is having a devastating impact on the hotel industry worldwide. Thousands of hotel firms have been bankrupted by the crisis, with countless hotel bookings cancelled due to travel restrictions and fear of contracting the coronavirus. According to a prediction by the American Tourism Association, the U.S. hospitality industry will suffer losses of up to 355 billion US dollars in 2020 due to COVID-19 [1]. According to the latest report of the World Health Organization (28 June 2020), the virus has infected more than nine million people globally and caused more than 495,000 deaths [2]. The combination of continuously increasing numbers of infections and deaths [3] and a lack of effective prevention and treatment has generated extreme levels of fear and uncertainty over COVID-19 among consumers.

Recent research has shown that people may alter or adjust their values and/or behavioral tendencies to cope with the worries or anxiety caused by natural or human-made disasters [4,5]. For example, people experiencing fear of a disaster tend to reinforce their communal well-being [6,7] and enhance their altruistic behavioral intentions [8]. The outbreak of COVID-19 was closely related to environmentally destructive behaviors, specifically the hunting of wild animals [9]. In relation to the hospitality industry, it is thus plausible that fear and uncertainty induced by the pandemic may promote environmental concerns among consumers and thus stimulate their preference for green hotels. Tracking changes in consumer behavior will be crucial to the survival of hotel firms as hospitality revives in the wake of the crisis. However, with the outbreak still recent, there have been no empirical studies to date on how consumers' emotions and cognitive perception regarding COVID-19 influence their environmental concerns and, subsequently, their green hotel consumption behaviors.

A recent report estimated that the lodging industry in China suffered losses of over 67 billion RMB in the first two months of 2020 due to COVID-19 [10]. Over the same period, however, the revenue losses recorded by green hotels were 5.75% lower than those of non-green hotels on a year-on-year basis. It appears that consumers were more willing to visit green hotels than non-green hotels during the early stages of the outbreak. Meanwhile, more than 85% of the non-green hotels surveyed stated that they were willing to implement additional green practices after the epidemic. Thus, we can infer that there is an important but yet to be explored link between the impact of COVID-19 and green hotel consumption behaviors. Such a link would present both challenges and opportunities to the lodging industry.

Against the background of the COVID-19 outbreak, this research aimed to address the aforementioned knowledge gap by proposing a conceptual framework incorporating fear and uncertainty of COVID-19, environmental concerns, green hotel brand trust, willingness to pay more for green hotels, and willingness to make sacrifices to stay at green hotels. Drawing on the literature of COVID-19, environmental concerns, and green hotel marketing, we sought to answer the following questions: (1) Has fear and uncertainty of COVID-19 increased consumers' environmental concerns? (2) Has greater environmental concern prompted by fear and uncertainty of COVID-19 increased consumers' brand trust in green hotels and willingness to pay more and to make sacrifices to stay at green hotels?

The remainder of the paper is organized as follows. In Section 2 we review the relevant literature on the fear and uncertainty of COVID-19 and consumers' environmental concerns. This section also outlines the hypotheses developed regarding how the fear and uncertainty of COVID-19 promotes environmental concerns and green hotel brand trust, and subsequently increases behavioral intentions toward green hotels. In Sections 3 and 4 we provide details of the survey design, measurement scales, and methods of data collection and analysis as well as the results. In Section 5, we discuss the theoretical and managerial implications, limitations, and future research.

2. Literature Review and Hypotheses Development

2.1. The Fear and Uncertainty of COVID-19

"COVID-19 and its consequences has led to fears, worries, and anxiety among individuals worldwide" [11]. In this study, we propose two factors to capture people's responses to the current pandemic situation: fear and uncertainty of COVID-19. The former is a typical emotional response to the crisis [12]; the latter is a typical cognitive response [13].

The fear of COVID-19 can be defined as a negative emotional state that captures the anxiety and depression experienced due to an awareness of the possible consequences of the COVID-19 pandemic, such as being infected with the coronavirus [11,14]. The high rates of transmission and mortality of COVID-19, combined with a lack of effective prevention and treatment measures, have left many people fearful of COVID-19 [15].

The uncertainty of COVID-19 captures a reasonable cognitive response to the pandemic. Large numbers of asymptomatic infected people, a lack of effective treatment, and continuously changing infection and mortality trends add up to a health crisis with a complex and unpredictable pattern, which gives rise to cognitive uncertainty [16–18].

Recent studies have discussed the negative effects of the COVID-19 pandemic on mental and physical health [19,20]. For example, Schimmenti et al. showed that the COVID-19 pandemic had generated negative emotions and a lack of secure attachment [15]. Nonetheless, the outbreak may also have yielded positive outcomes. According to a recent news report from the BBC [21], the COVID-19 pandemic may have encouraged people to behave in a more morally guided way. Prior research had already offered consistent evidence that the fear of natural or human-made disasters could promote social obligation and altruistic behavior [6,7,22]. Yet although the outbreak of COVID-19 has been

described as “nature’s revenge” [23], few studies have explored the effects of fear and uncertainty of COVID-19 on consumers’ environmental concerns.

2.2. Environmental Concerns

Environmental concern is defined as a general pro-environmental value orientation or a supportive attitude toward environmentally relevant behavior [24]. Individuals emphasizing environmental concerns believe that human beings should live in harmony with nature, seek to protect the natural environment, and avoid behavior that is harmful to the natural environment [25]. From an anthropocentric altruism perspective, people care about environmental quality mainly because they believe that a degraded environment poses a threat to people’s health. Thus, it is not the threat to the environment but the threat to the well-being of people that is of central concern [26]. In addition, environmental concern expresses self-interest, because perceived personal threats caused by environmental deterioration are an important factor underlying environmentally responsible behavior [27]. In summary, environmental concerns encompass elements of biospheric values, social altruism and egoism.

Past studies have shown that environmental concerns can be influenced by both chronic [28,29] and situational factors [30,31]. External or situational factors are considered to be the most influential in developing individuals’ environmental concerns [32–36]. The rationale is that individuals who suffer as a result of environmental crises or natural disasters may truly realize the importance of the natural environment and thus become more concerned about environmental protection.

When the environmental concerns of consumers are reinforced, they alter their subsequent consumer behaviors to reflect these concerns [36–39]. With increasing awareness of the severity of environmental damage and the rise of environmental activism, an increasing number of consumers have developed a concern for the environment and a preference for products that have a less negative impact on nature [40]. Recent research in the hospitality field has paid attention to the relationship between environmental concerns and consumption behavior. For example, environmental concern promotes the intention to visit green coffeeshops [41] and support initiatives to reduce meat consumption [42]. In addition, recent research has suggested that consumers’ environmental concerns increase the perceived value of green hotels [43] and intention to visit green hotels [44].

2.3. Hypotheses Development

2.3.1. The Fear of COVID-19, the Uncertainty of COVID-19, and Environmental Concerns

The fear of COVID-19 is closely related to environmental concerns. As “COVID-19 is reported as a bat related epidemic” [9], the outbreak is often perceived as the revenge of nature on humankind. One lesson of the pandemic might be that the human-nature relationship is extremely important, and humans can benefit by learning from and living with nature instead of trying to exploit and change it. Therefore, we expected consumers with a high (vs. low) level of fear of COVID-19 to be more likely to strengthen their pro-environmental values and reinforce their pro-environmental behaviors (e.g., protecting wild animals). In addition, according to terror management research [45], fear of COVID-19 can be treated as a reflection of mortality salience, which may induce a pro-environmental motivation, especially when people believe that nature is highly relevant to them [46]. Based on the preceding discussion, the following hypothesis was formulated:

Hypothesis 1 (H1). *The fear of COVID-19 positively affects environmental concerns.*

The uncertainty of COVID-19 is also highly related to environmental concerns. According to cognitive theory [47], an individual’s level of cognition of a specific thing strongly affects their attention to its causes or other factors with which it is associated. Accordingly, we expected consumers with higher levels of uncertainty of COVID-19 to be more concerned about the natural environment,

given that the outbreak of the pandemic has been closely connected with the destruction of nature. Furthermore, recent research has suggested that individuals with a generally high level of uncertainty are more willing than their counterparts with a generally low level of uncertainty to engage in initiatives to promote environmental sustainability [48]. The explanation that has been given for this relationship is that individuals experiencing higher levels of uncertainty are more conservative and place greater emphasis on future sustainable development [49,50]. Based on this review of the literature, we proposed the following hypothesis:

Hypothesis 2 (H2). *The uncertainty of COVID-19 positively affects environmental concerns.*

2.3.2. The Influence of Environmental Concerns on Green Hotel Brand Trust

Green hotels are a hospitality industry product stemming from consideration of environmental concerns [39,51]. Previous studies have indicated that consumers who are concerned about the environment have favorable attitudes toward eco-friendly products or services, including visiting green hotels [37–39]. For example, Teng et al. (2018) found that environmental values among consumers enhanced their perception of the brand value of green hotels [43]. Rahman and Reynolds (2016) showed that biospheric values, which “emphasize the welfare of the environment” (p. 108) [52], promoted the intention to visit green hotels. Han et al. (2018) further verified that guests’ environmental concerns increased their participation in pro-environmental practices in green hotels [53]. Given the above, we expected consumers with environmental concerns to be more likely to trust green hotel brands because of the emphasis they place on practices to protect the environment. Accordingly, we proposed the following hypothesis:

Hypothesis 3 (H3). *Environmental concerns positively affect green hotel brand trust.*

2.3.3. The Influence of Green Hotel Brand Trust on Willingness to Pay More and Make Sacrifices to Stay at Green Hotels

Research drawing on the attitude-behavior theory has shown that trust in a brand can promote subsequent behavioral intentions toward the brand, such as repurchase behavior, premium purchase intention, and brand loyalty behavior [54–57]. Similarly, we expected trust in green hotel brands to promote green hotel visit intention. Rahman and Reynolds (2016) described two typical green hotel visit intentions: willingness to pay more to stay at green hotels and willingness to make sacrifices to stay at green hotels [52]. The former represents consumers’ willingness to pay a premium for green hotel brands, while the latter, reflecting a higher degree of preference for and loyalty to green hotels, represents consumers’ willingness to sacrifice convenience, comfort, and luxury to stay at green hotels. In the context of the COVID-19 pandemic, we predicted that consumers with high (vs. low) levels of brand trust in green hotels would be willing to pay more and sacrifice other positive hotel attributes to stay at a green hotel. Therefore, we proposed the following hypotheses:

Hypothesis 4 (H4). *Green hotel brand trust positively affects the willingness to pay more for green hotels.*

Hypothesis 5 (H5). *Green hotel brand trust positively affects the willingness to make sacrifices to stay at green hotels.*

2.3.4. The Mediating Effect of Environmental Concerns

Given that the coronavirus pandemic is closely related to environmental damage, consumers who fear infection and experience high uncertainty over COVID-19 are highly likely to realize the importance of protecting the natural environment. According to previous research on green consumption, environmental consciousness can develop positive attitudes and behavioral intentions toward green brands [37,38,52]. In other words, the above discussion suggests that enhanced

environmental concern is a mediating factor in the relationship between COVID-19 and green hotel brand trust. Thus, we expected consumers' fear and uncertainty of COVID-19 to promote their environmental concerns, in turn enhancing their trust in green hotel brands.

Hypothesis 6a (H6a). *Environmental concerns mediate the relationship between the fear of COVID-19 and green hotel brand trust.*

Hypothesis 6b (H6b). *Environmental concerns mediate the relationship between the uncertainty of COVID-19 and green hotel brand trust.*

The research model of this paper is shown in Figure 1.

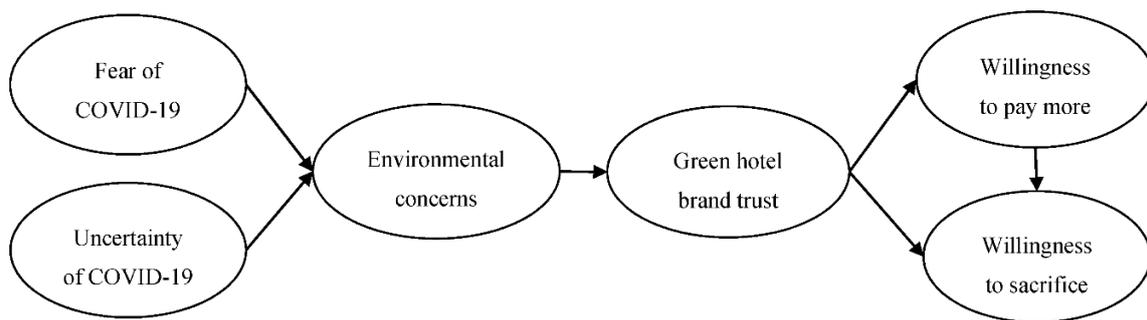


Figure 1. Research model.

3. Method

3.1. Measures

Given the outbreak of COVID-19, an online survey approach was employed to avoid direct contact with respondents and to reduce the risk of infection. The constructs for measurement were fear of COVID-19, uncertainty of COVID-19, environmental concerns, green hotel brand trust, willingness to pay more to stay at a green hotel, and willingness to make sacrifices to stay at a green hotel. Established scales were used for all of these measurements. The fear and uncertainty of COVID-19 were measured using the four-item scale proposed by Bitan et al. (2020) and the three-item scale proposed by Andrews (2008), respectively [46,58]. Six items for environmental concerns were adopted from Soyez (2012) [25]. A scale developed by Song et al. (2019) was used to measure green hotel brand trust [59]. Willingness to pay more to stay at a green hotel was measured using the three-item scale from Han et al. (2010) [38]. For willingness to make sacrifices to stay at a green hotel, we adopted the three-item scale reported by Rahman and Reynolds (2016) [52]. Each item was scored on a seven-point Likert scale (from 1 = strongly disagree to 7 = strongly agree).

3.2. Sample and Procedure

The questionnaire was administered through Amazon's Mechanical Turk, which is the largest Internet platform and an integrated participant compensation system for recruiting and collecting data from questionnaire respondents [52,60]. The questionnaire survey was conducted from 29 May to 30 May, 2020, with participants selected using a random sampling method. The questionnaire was divided into two parts. The first part of the survey collected responses pertaining to the above constructs. The second part collected demographic information, namely gender, age, income level, hotel stays per year, and annual hotel spending per year. Seven hundred questionnaires were collected before the response deadline, of which 613 (87.6%) were deemed valid. The returned questionnaires were screened for validity based on the following two principles: (1) the respondent needs to complete all the questions in the questionnaire, and (2) the respondent must not select the same option in

response to all of the questions. Of the final sample, 67.9% of the respondents were male and 32.1% were female. In terms of age, respondents aged 21–30 accounted for the largest proportion (37.4%), followed by those aged between 31 and 40 (29.5%), 41 and 50 (18.6%), 51 and 60 (9.5%), over 60 (4.3%), and finally under 20 (0.7%). All of the demographic information is shown in Table 1.

Table 1. Demographic profile of the sample (N = 613).

Variable	<i>n</i>	%
Gender		
Male	416	67.9
Female	197	32.1
Age		
≤20	4	0.7
21–30	229	37.4
31–40	181	29.5
41–50	114	18.6
51–60	58	9.5
>60	27	4.3
Income level (USD)		
0–9999	23	3.8
10,000–19,999	33	5.4
20,000–29,999	72	11.7
30,000–39,999	71	11.6
40,000–49,999	89	14.5
50,000–59,999	87	14.2
60,000–69,999	58	9.5
70,000–79,999	54	8.8
80,000–89,999	34	5.5
90,000–99,999	43	7.0
100,000 or more	49	8.0
Hotel stays per year		
0–1	81	13.2
2–4	291	47.5
5–7	165	26.9
8–10	41	6.7
11 or more	35	5.7
Hotel spending per year (USD)		
Less than 50	28	4.6
50–99	62	10.1
100–199	143	23.3
200–499	165	26.9
500–999	123	20.1
1000 or more	92	15.0

3.3. Data Collection and Analysis

SPSS 20 was used to obtain the descriptive statistics and conduct reliability analysis and mediation tests. The reliability of each construct was tested using Cronbach's alpha, the dimensions of the revised scale were tested with an exploratory factor analysis, and the mediating effect (Hypothesis 6) was tested using the SPSS PROCESS macro plugin [61].

Amos 22 software was used for model and validity testing [62]. First, confirmatory factor analysis was performed to determine the factor loading, average variance extracted (AVE) value, and combined validity of each item and then to verify the validity of the model. Second, structural equation modeling was performed to test Hypotheses 1–5.

4. Results

4.1. Measurement Model

According to the two-step approach to structural equation modeling proposed by Hair et al. (2009) [62], we first checked whether all of the measurement items were significant and whether their factor loadings exceeded 0.5. We established a first-order model containing our six constructs to examine the reliability and validity of the overall scale. The model exhibited acceptable fit: $\chi^2 = 827.172$ ($df = 237$, $p < 0.001$), $\chi^2/df = 3.490$, Root Mean Square Error of Approximation (RMSEA) = 0.064, Goodness of Fit Index (GFI) = 0.882, Normed Fit Index (NFI) = 0.928, Confirmatory Fit Index (CFI) = 0.947, Incremental Fit Index (IFI) = 0.947, Tucker-Lewis Index (TLI) = 0.938, Relative Fit Index (RFI) = 0.916, Parsimony Normed Fit Index (PNFI) = 0.797, and Parsimony Goodness Fit Index (PGFI) = 0.697. All of the items in the model were significant, and factor loadings were greater than 0.67. Cronbach's alpha coefficient for each construct was greater than 0.84. The AVE values were all greater than 0.5 (see Table 2). Thus, the analysis results demonstrate good reliability and validity.

Data screening to detect normality, outliers, and missing values was conducted before the analysis. The presence of common method variance (CMV) was examined by Harmon's one-factor approach [63]. All 24 measurement items were entered into an exploratory factor analysis (EFA). The results indicated five factors with eigenvalues greater than 1, explaining 73.86% of the total variance. The first factor accounted for 41.63% of the total variance (less than 50%). Therefore, no apparent problems associated with CMV were identified.

In addition, the method proposed by Bagozzi and Phillips (1991) was used to detect the problem of data homology deviation [64]. This approach tests that the correlation coefficient of each construct is not greater than 0.9. Pearson correlation coefficients were calculated using a two-tailed test, with the results shown in Table 3. The highest correlation coefficient between the constructs was 0.731 (between willingness to pay more to stay at a green hotel and willingness to make sacrifices to stay at a green hotel), which is not greater than the threshold of 0.9. This test also indicated that each construct had good discriminative validity, thus showing the model to be suitable for hypothesis testing.

4.2. Hypotheses Testing

We examined Hypotheses 1–5 with the conceptual model (Figure 2) using maximum likelihood estimation. The model exhibited an acceptable fit: $\chi^2 = 930.909$ ($df = 245$, $p < 0.001$), $\chi^2/df = 3.800$, RMSEA = 0.068, GFI = 0.869, NFI = 0.919, CFI = 0.939, IFI = 0.939, TLI = 0.931, RFI = 0.908, PNFI = 0.815, and PGFI = 0.709. The results show that fear of COVID-19 was positively associated with environmental concerns ($\beta = 0.13$, $t = 2.409$, $p = 0.016$), thus supporting Hypothesis 1. This suggests that people who are fearful of COVID-19 are more likely to be concerned for the environment. Uncertainty of COVID-19 was also positively associated with environmental concerns ($\beta = 0.38$, $t = 6.382$, $p < 0.001$), thus supporting Hypothesis 2. This suggests that people expressing more perceived uncertainty over COVID-19 are more likely to be concerned about the environment. Environmental concerns was positively associated with green hotel brand trust ($\beta = 0.63$, $t = 12.175$, $p < 0.001$), thus supporting Hypothesis 3. This suggests that concerning about the environment is closely related to trust in green hotel brands. The results also showed that green hotel brand trust was positively associated with willingness to pay more and willingness to make sacrifices to stay at a green hotel ($\beta = 0.73$, $t = 18.760$, $p < 0.001$; $\beta = 0.12$, $t = 2.543$, $p = 0.011$). These findings supported Hypotheses 4 and 5 and suggest that green hotel brand trust is an important predictor of willingness to pay more and willingness to make sacrifices to stay at a green hotel. There was also a significant positive association between green willingness to pay more and willingness to make sacrifices to stay at a green hotel ($\beta = 0.74$, $t = 14.081$, $p < 0.001$). Figure 2 shows the results of the structural equation modeling, and Table 4 shows the results of the hypotheses testing. In summary, the results revealed that fear and uncertainty of COVID-19 significantly increased consumers' environmental concerns and green hotel brand trust, which in turn enhanced their willingness to pay more and willingness to make sacrifices to stay at green hotels.

Table 2. Results of confirmatory factor analysis of the instrument (n = 613).

Construct Item	AVE	α	Construct Reliability	Standardized Loading	M	SD
Fear of COVID-19 (FC)	0.81	0.93	0.94			
I am afraid of the coronavirus.				0.91	5.43	1.465
It makes me uncomfortable to think about the coronavirus.				0.90	5.23	1.494
I am afraid of losing my life because of the coronavirus.				0.88	5.17	1.606
When watching news and stories about the coronavirus on social media, I become nervous or anxious.				0.90	5.25	1.552
Uncertainty of COVID-19 (UC)	0.64	0.84	0.84			
I perceive the context of COVID-19 as very complex.				0.83	5.35	1.320
I perceive the context of COVID-19 as unpredictable.				0.78	5.41	1.261
I perceive the context of COVID-19 as changing rapidly.				0.79	5.39	1.240
Environmental concerns (EC)	0.57	0.88	0.89			
It makes me sad to see natural environments destroyed.				0.78	5.82	1.117
Nature is valuable for its own sake.				0.73	5.82	1.102
One of the most important reasons to conserve is to preserve wild areas.				0.76	5.81	1.039
Nature is important because of what it can contribute to the pleasure and welfare of humans.				0.76	5.78	1.066
We need to preserve resources to maintain a high quality of life.				0.82	5.85	1.066
One of the most important reasons to conserve is to ensure a continued high standard of living.				0.67	5.69	1.116
Green hotel brand trust (GHBT)	0.67	0.91	0.91			
I trust a green hotel.				0.83	5.51	1.117
I think a green hotel is a company that strives to keep its promise to customers.				0.80	5.46	1.151
I think a green hotel is stable for its customers.				0.82	5.54	1.158
I would like a green hotel to continue to provide quality services to its customers.				0.78	5.60	1.148
As a hotel, a green hotel meets my expectations.				0.86	5.54	1.142
Willingness to pay more for a green hotel (WTPM)	0.76	0.91	0.91			
I am willing to pay more for a green hotel.				0.92	5.17	1.489
It is acceptable to pay more for a hotel that engages in green practices.				0.82	5.27	1.342
I am willing to spend extra to stay at an environmentally friendly hotel.				0.88	5.27	1.487
Willingness to make sacrifices to stay at a green hotel (WSGH)	0.74	0.90	0.90			
I am willing to sacrifice quality to stay at a green hotel.				0.89	5.01	1.522
I am willing to sacrifice convenience to stay at a green hotel.				0.86	5.00	1.531
I am willing to sacrifice luxury to stay at a green hotel.				0.83	5.21	1.438

Table 3. Correlations and square roots of the average extracted variances (n = 613).

Construct	FC	UC	EC	GHBT	WTPM	WSGH
FC	0.90					
UC	0.534 **	0.80				
EC	0.311 **	0.386 **	0.76			
GHBT	0.378 **	0.412 **	0.566 **	0.82		
WTPM	0.322 **	0.417 **	0.373 **	0.669 **	0.87	
WSGH	0.386 **	0.378 **	0.323 **	0.586 **	0.731 **	0.86

FC = fear of COVID-19; UC = uncertainty of COVID-19; EC = environmental concerns; GHBT = green hotel brand trust; WTPM = willingness to pay more for a green hotel; WSGH = willingness to make sacrifices to stay at a green hotel. The bold numbers along the diagonal are square roots of the AVEs. ** $p < 0.01$, two-tailed.

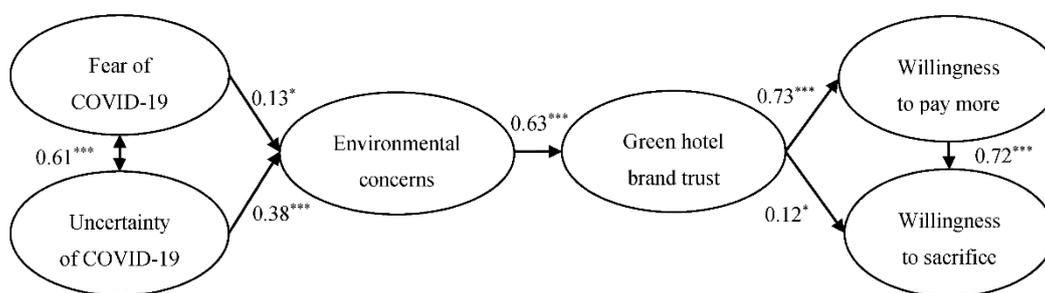


Figure 2. Structural equation model. * $p < 0.05$. *** $p < 0.001$.

Table 4. Structural model and path coefficients (n = 613).

Path	Estimate	Result
H1: Fear of COVID-19→Environmental concerns	0.13 * ($t = 2.409$)	Accepted
H2: Uncertainty of COVID-19→Environmental concerns	0.38 *** ($t = 6.382$)	Accepted
H3: Environmental concerns→Green hotel brand trust	0.63 *** ($t = 12.715$)	Accepted
H4: Green hotel brand trust→Willingness to pay more for a green hotel	0.73 *** ($t = 18.760$)	Accepted
H5: Green hotel brand trust→Willingness to make sacrifices to stay at a green hotel	0.12 * ($t = 2.543$)	Accepted

* $p < 0.05$. *** $p < 0.001$.

This study utilized the non-parametric bootstrapping method with 5000 bootstrapping iterations at 95% confidence intervals (CIs) to test the hypothesized mediating effect (see Table 5). The intermediary test results showed that environmental concerns had a significant partial mediating effect on the relationship between fear of COVID-19 and green hotel brand trust, with a mediating effect size of 0.11 (95% CIs [0.0680, 0.1615], $p < 0.001$). The direct relationship was also significant (0.1088, 0.2010, $p < 0.001$), thus indicating partial mediation. Environmental concerns also had a significant partial mediating effect on the relationship between uncertainty of COVID-19 and green hotel brand trust, with a mediating effect size of 0.16 ([0.1106, 0.2307], $p < 0.001$). The direct effect of uncertainty of COVID-19 on green hotel brand trust was also significant ([0.1410, 0.2625], $p < 0.001$), thus indicating partial mediation. The results of mediation testing thus supported both Hypothesis 6a and 6b. The results of the mediation analysis showed that in the context of COVID-19, individual’s fear and uncertainty of the pandemic can enhance their trust in green hotel brands by promoting their environmental concern.

Table 5. Results of mediation testing: bootstrap analysis.

Mediation Hypothesis	Estimate	95% CI	p-Value	Result
H6a: Fear of COVID-19→Environmental concerns→Green hotel brand trust				Partial mediation
Direct	0.16 (<i>t</i> = 6.60)	0.1088, 0.2010	<0.001	
Indirect	0.11 (<i>t</i> = 6.63)	0.0680, 0.1615	<0.001	
H6b: Uncertainty over COVID-19→Environmental concerns→Green hotel brand trust				Partial mediation
Direct	0.20 (<i>t</i> = 6.52)	0.1410, 0.2625	<0.001	
Indirect	0.16 (<i>t</i> = 5.76)	0.1106, 0.2307	<0.001	

5. Conclusions and Discussion

5.1. Conclusions

No recent event has had a greater impact on the hospitality industry than the COVID-19 pandemic. As articulated in a recent report, “COVID-19 plunged a knife in the collective heart of the global hotel industry and in one fell swoop destroyed demand, sending revenue and profit to historically low levels” [65]. Meanwhile, according to The Economic Times (May 14, 2020), the United Nations has warned that “COVID-19 has the seeds of a major mental health crisis” [66]. Although many people are extremely fearful of COVID-19, there is some optimism that this very fear may also alert people to the importance of environmental protection and thus strengthen their green consumption tendencies in the hotel industry. To verify our predictions regarding the effects of the COVID-19 pandemic on the hospitality industry, we proposed a comprehensive model incorporating fear and uncertainty of COVID-19, environmental concerns, green hotel brand trust, and willingness to pay more and make sacrifices to stay at green hotels. From our empirical results, we show that (1) fear and uncertainty of COVID-19 have had a significant positive impact on consumers’ environmental concerns; (2) environmental concerns have a significant positive impact on green hotel brand trust; and (3) green hotel brand trust positively affects the willingness to pay more and the willingness to make sacrifices to stay at green hotels. Overall, our research provides novel insights into the potential for fear and uncertainty of COVID-19 to positively influence consumers’ environmental concerns and subsequently reinforce their green hotel brand trust and behavioral intentions toward green hotels.

5.2. Theoretical Implications

This study makes several contributions to research on consumers’ environmental concerns and green hotels. First, we fill a gap in the literature, pointed out recently by Rhou and Singal (2020) [67], pertaining to how natural or human-made disasters affect green consumer behavior in the hospitality industry. Furthermore, prior research in hospitality and tourism has only revealed the negative consequences of the emotional responses to natural disasters, such as tsunamis, observing that feelings of being overwhelmed and in danger reduce travel intentions among consumers [68]. Departing from these studies, our research sheds new light on the green hotel industry by showing that fear and uncertainty over COVID-19 can promote consumers’ trust in green hotel brands by positively reinforcing their environmental concerns. Moreover, these effects may further manifest in a willingness to make sacrifices and to pay more to stay at green hotels.

Second, our study enriches research on the psychological consequences resulting from the impact of COVID-19. Most studies have focused on the negative effects of fear of COVID-19 on physical and mental health [19,20,69]. Surprisingly, no research has explored the relationship between fear of COVID-19 and environmental concerns, despite the fact that environmental destruction paves the way for pandemics. Our findings demonstrate that consumers’ fear and uncertainty of COVID-19 can remind them of the need to pay attention to environmental protection.

In addition, our empirical study complements the emerging research on the effects of COVID-19 on the hospitality industry, especially as most of these studies have adopted a qualitative or exploratory paradigm [70,71]. Our quantitative study provides evidence that consumers experiencing more fear and uncertainty regarding the pandemic are likely to have increased brand trust in green hotels and an increased willingness to pay more and make sacrifices to stay at green hotels. Accordingly, our paper enriches the literature on green hotels amid the COVID-19 pandemic.

5.3. Practical Implications

Our research has two major implications for hotel managers. First, it provides insights for hoteliers into brand building under the impact of the pandemic. Given the persistent uncertainty surrounding COVID-19, the fear of the coronavirus is still present. Hence, we suggest that hotel managers establish or strengthen their brands' green image, as the results of this study indicate that the fear of coronavirus will enhance consumers' trust in green hotel brands and further stimulate their willingness to pay more and even make sacrifices to stay at green hotels. For example, to emphasize their green image, hotels can implement various green practices, such as saving water and energy, reducing solid waste, and recycling and reusing durable service items (e.g., bins, towels) [38,39]. Second, as consumers' environmental consciousness is particularly salient during the pandemic, hotels can develop strong advertising campaigns that emphasize the harmonious relationships between nature, the hotel, and its clients. This might lead to increased brand identification and trust among consumers.

5.4. Limitations and Future Research

There are several limitations to this study. First, the COVID-19 pandemic has made people feel not only afraid, but also tired, worried, apathetic, frustrated, and depressed. Further research could explore how these negative emotions influence consumers' brand attitudes or brand preferences in the hospitality industry. For example, the active or passive social distancing of clients to prevent the spread of the virus might motivate consumers to choose niche hotel brands that are less popular with mainstream consumers. Second, we found that environmental concerns partially mediated the relationship between fear and uncertainty over COVID-19 and brand trust of green hotels. This points to the existence of other potential mediators.

Third, as the survey respondents were U.S. hotel guests, caution must be taken in applying the findings to different countries. To enhance the generalizability of the findings, the replication of this study in other countries is encouraged. Fourth, given that our study used a self-reported survey to record the respondents' perceptions of environmental concerns and green hotel behavioral intentions, social desirability bias might have affected the responses [52].

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