



Social distancing, trust and post-COVID-19 recovery

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ABSTRACT

With the tourism and hospitality sector reopening post-lockdown of COVID-19, the recovery of customers' purchase intentions is essential to reboot the sector. This study aims to examine the relationship between social distancing measures and purchase intentions in the UK's restaurant and hotel sectors using a propensity score weighting experimental design method. The findings suggest that the impact of social distancing measures on purchase intentions is mediated by the trust in the targeted restaurant and hotel. Risk tolerance significantly moderates the influence of social distancing measures on trust; (non-) cash promotions have an insignificant impact on purchase intentions. The introduction of the propensity score weighting scheme addresses the endogeneity caused by the sampling bias in non-probability sampling experiment studies.

1. Introduction

The coronavirus (COVID-19) outbreak and subsequent national lockdowns and containment measures (e.g. social distancing) have decreased the willingness to travel and paralysed the industry from airlines to hotels and restaurants (Karabulut et al., 2020). Slowly, numerous countries (e.g. Denmark, South Korea, China, New Zealand, etc.) show signs of control in the number of deaths and infections, these countries have been easing their control and lifting the lockdown measures, allowing businesses to gradually open with compliance to government guidelines and rules on health and safety and social distancing measures where appropriate (BFPG, 2020). Yet, the recovery back to normal is debatable.

Research focusing on COVID-19 and tourism has been published rapidly. Most of the studies shed light on the influence of the pandemic on economic growth (Yang et al., 2020), society (Qiu et al., 2020) and the recovery path (Liu et al., 2021). In the health discipline, scholars investigated people's reaction to social distancing measures (Teasdale et al., 2014) based on individual's risk perception to the pandemic but also their health (Xie et al., 2020). However, the influence of risk perception and social distancing measures on customers' purchase intentions has been overlooked; the focus on the mechanism between the social distancing measures and purchase intentions is even less. With the tourism and hospitality sector reopening in various countries (BFPG, 2020), research is timely to investigate consumer purchase intention and its determinants to eating out in restaurants and booking hotels where social distancing measures are practised and respected. Therefore, this

research aims to investigate the impact of social distancing measures, as a consumer's level of perceived risk, on purchase intentions in eating out in restaurants and booking hotels after lockdown measures are lifted using a propensity score weighting experimental design method.

The originality of the study is as follows. Firstly, this is the first attempt to infer the mechanism between social distancing measures and the purchase intention of consumers by the integration of the health belief model (HBM) and theory of planned behaviour (TPB). The narrative framework enriches the understanding of consumer behaviours in the post-lockdown/COVID-19 context. Second, it examines the effectiveness of promotion offers in the new COVID-19 context. There is evidence from short-term policy effects on the hospitality industry, but it is further questionable to see the impact of certain business operations and strategies on regaining their customers back in the long run. Third, this is the first time to introduce the propensity score weighting (PSW) scheme to address the sampling bias in non-probability sampling experiment design studies in the tourism and hospitality field. The findings of the study will generate new knowledge to further understand the impact of COVID-19 on consumer behaviours in the hospitality and wider service market.

The remainder of the paper is structured as follows: section 2 reviews the relevant literature on social distancing, trust and purchase intentions, and the moderating role of self-efficacy and risk tolerance; section 3 presents the overview of the two phases conducted in this study; sections 4 and 5 introduce the two phases of the study, respectively, and lastly, section 6 concludes the paper with a summary of the findings and discussion and theoretical and practical implication of the

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current study.

2. Literature review

2.1. Risk perception, social distancing measures and purchase intention

The concept of perceived risk is commonly used to explain consumer behaviour during crises (Foroudi et al., 2021). In the health literature, the HBM has been widely used to examine the determinants of positive health behaviours (Carpenter, 2010); people are more likely to take positive health behaviours when they are susceptible to negative health outcomes, understand the benefit of the health behaviour or the barriers to implementing such health behaviour is weak (Rosenstock, 1974). In general, the HBM confirms that the perceived risk determines people's health behaviours. Scholars have extended the research scope from behaviours to intentions in HBM applications (Cahyanto et al., 2016 - risk and travel avoidance; Setbon & Raude, 2010 - risk and vaccination intention; Walrave et al., 2020 - contact tracing app use intention).

In the tourism literature, the TPB is more frequently used to examine the impact of perceived risk on travel intentions during pandemic crises (Lee et al., 2012). In making decisions in conditions of epidemics, crises and disasters, many studies have used the TPB to understand consumers' purchase intentions when the economy is unstable (Daellenbach et al., 2018). The identified determinants include attitude, perceived behavioural control (e.g. self-efficacy, self-risk) and subject norms (Cho & Lee, 2015). Li et al. (2020) confirmed the effectiveness of the determinants in TPB in the COVID-19 context, specifically on an individual's intention to travel in general.

Gerend and Shepherd (2012) compared the HBM and TPB and believed that there are considerable connections between the theories. For example, perceived risk is a determinant of the behavioural intention in HBM (Walrave et al., 2020); whereas the perceived behavioural control also determines the intention in TPB (Li et al., 2020). As a rational person, individuals with high risk perceptions will take precautionary actions based on their belief that such actions are effective and that they are personally capable of undertaking such actions (self-efficacy) (Jiang et al., 2009). This suggests that the presence of social distancing measures, which is a perceived behavioural control (Morrison & Yardley, 2009), can reduce the perceived risk and thus influence an individual's behavioural intention.

In this research, behavioural intention is defined as the consumer's (or guest's) intention to purchase a meal at a restaurant or book a room at a hotel in the post-lockdown and COVID-19 era. The proposed impact of social distancing measures (a proxy for lowered perceived risk) and trust (see section 2.2) on purchase intentions at hospitality businesses postulates that expectations about the outcome of a given behaviour influence the intention to undertake a behaviour as suggested in the HBM (Rosenstock, 1974) and TPB (Ajzen, 1991). Thus, Hypothesis 1 is proposed as follows:

Hypothesis 1. The practice of social distancing measures can increase the purchase intention of customers in the hospitality industry.

2.2. Trust and its mediation effect

Trust is believed as a key enabling factor in relation to environments or situations where there is uncertainty (McKnight & Chervany, 2001). With uncertainties and anxieties of COVID-19 and consumers' fear towards engaging in leisure and economic activities post-lockdown, as a service provider, delivering trust will be crucial to increase purchase intentions. For example, this can be in the form of information transparency (Wang et al., 2015) and brand equity (Han et al., 2015). The exchange of services, especially in human encounters, highly rely on trust due to the intangibility of services creating uncertainty and perceived risks for consumers (Han et al., 2008). Thus, when service providers practice social distancing measures, which can lower the

consumer's perceived risk, can increase the level of trust to the service provider, in that the provider is capable of providing quality services to the consumers, significantly affecting consumer's purchase behaviour (Comegys et al., 2009). There are many studies on the effect of trust on risk (Cho & Lee, 2015) with minimal research on the role of risk on trust (Mou et al., 2017). Yet, perceived risk is a necessary determinant of trust to a (service) provider to be operative (Mitchell, 1999). It is therefore important to consider that individual's behavioural intention is not only influenced by their risk perception but also because he/she does not trust that the service provider will perform well under the circumstance of uncertainty. Thus, the potential role of trust as a mediator between social distancing measures and purchase intentions will be examined:

Hypothesis 2. Trust in targeted hospitality service providers positively mediates the impact of the practice of social distancing measures on purchase intention.

2.3. The moderating effects of self-efficacy and risk tolerance

Self-efficacy refers to the willingness or belief of an individual in that a behaviour or action can be carried under control with confidence and competence (Floyd et al., 2000). It has been argued that perceived behavioural control depends on the level of self-efficacy of an individual, which leads to high concentration on the task and promoting the engagement to new actions and behaviours (De Young, 2000). Bandura (1991) highlighted that self-efficacy plays a crucial role in the individual's likelihood to engage in prevention behaviour such as social distancing. If a person is confident and believes that he/she is competent to behave in a certain way under uncertain circumstances, e.g. post-lockdown COVID-19 era, and can purchase a product or service that they want from a provider, then the person is more likely to trust the provider and purchase. McKnight and Chervany (2001) stated that a trusting belief is "a belief that the other party has one or more characteristics beneficial to oneself" (p.46), which implies that the more positive perception and attitude a consumer has towards a provider, the more likely they are to trust that provider. In the current study, trusting the hospitality service provider when practising social distancing measures in their restaurant or hotel, which lowers perceived risks, can be significantly influenced by the customer's level of self-efficacy (Bandura, 1991).

Hypothesis 3a Self-efficacy positively moderates the relationship between social distancing measures and trust.

Risk tolerance can refer to an individual's capacity to accept risk and the level of knowledge regarding a situation (Inouye, 2014). According to the HBM, being motivated to protect depends on the severity of the threat or risk anticipated from negative consequences, personal vulnerability and ability to take preventive measures (Inouye, 2014). It has been argued that those who are less informed of a situation are less likely to take risks, while those with more knowledge are more likely to have higher levels of risk tolerance (Huang et al., 2013). Thus, if a consumer knows that a service provider is practising social distancing measures, their level of perceived risk will be lower, which can also increase the level of risk tolerance and lead to high-risk behaviours. A high level of risk tolerance can increase the trust of consumers to the provider given sufficient knowledge regarding the circumstance and the individual's ability to take preventive measures are strong. However, if perceived risk over time goes beyond the level of tolerance, then the customer can lose its choice of trusting the provider or subject (Hong & Cha, 2013). Thus, a high level of risk tolerance can strengthen the relationship between the existence of social distancing measures and trust:

Hypothesis 3b Risk tolerance positively moderates the relationship between social distancing measures and trust.

2.4. The moderating effects of promotion offers

Promotion offer is a strong incentive tool for attracting consumers and increase sales values (Cui et al., 2016), especially for business recovery. Previous service failure studies have used a range of discounts and reimbursements in the forms of price reductions (Mullin & Cummins, 2010), coupons and vouchers to experiment consumer behaviour towards service recovery (Harris et al., 2006). Direct effects of promotional offers on purchase intentions have been studied vastly in tourism and hospitality, but also retail and e-commerce (Harris et al., 2006; Yang et al., 2016). A price promotion provides a monetary gain, which incentivises consumers to purchase the product, which has been clearly understood. However, how promotional offers can indirectly strengthen customer’s purchase intention, especially in the context of post-crisis and business recovery, is limited. In the current study, it has been proposed that social distancing measures practised by hospitality providers will increase consumers’ purchasing intentions, and further, based on consumers interest and attention towards promotional offers, cash and/or non-cash promotions can further enhance the purchasing intentions:

Hypothesis. 4a Cash promotion positively moderates the relationship between social distancing measures and purchase intention.

Hypothesis. 4b Non-cash promotion positively moderates the relationship between social distancing measures and purchase intention.

2.5. The conceptual framework

Based on the empirical and theoretical literature review and hypotheses development, the conceptual framework of this study is presented in Fig. 1.

3. Study overview

This study is composed of two phases. Phase 1 is the manipulation check which investigates if there is a significant difference in purchase intentions when social distancing measures are implemented or not. Phase 2 further examines the whole framework proposed in Fig. 1. The UK is selected as the case of this study because the UK was the eighth nation with the highest confirmed COVID-19 cases, with 4.53 million positive cases, 152 thousand deaths at the time of writing (Corona Tracker, 2021). From the first lockdown starting on March 23rd 2020 to the current roadmap to ease the third lockdown in England with various measures imply that this current research is timely (BFPG, 2020).

Different scenarios in terms of the presence of social distancing measures and various promotion strategies were developed based on the results of the desk research and a panel discussion with experts with intensive academic and industry background (see Supplementary material). UK residents who are aged 18 and above and have the experience of dining in a restaurant/staying in a hotel for leisure purposes in the

past 12 months were eligible for the restaurant/hotel survey. Data of the two phases were collected by Dynata, which is a global online market research company, from May 28, 2020 to June 17, 2020.

To address the potential endogeneity problem resulted from the selection bias in non-probability sampling, the PSW scheme (Rosenbaum & Rubin, 1983) was used in the inference analysis. A propensity score is defined as the conditional probability of an observation assigned to a treatment group given a set of covariates (Rosenbaum & Rubin, 1983). In the PSW scheme, observations with higher conditional probabilities to be assigned to the treatment group will have lower weights and vice versa. After weighting, observations in treatment and control groups will have similar conditional probabilities; in other words, the two groups will have similar covariates. Then if there is a significant difference on the dependent variable, the difference can only be caused by the treatment effect and thus a causal relationship between the treatment and the dependent variable will be established (Viglia & Dolnicar, 2020).

4. Phase 1: the impact of social distancing measures on purchase intentions

4.1. Research design and procedures

In Phase I, the statement “I am willing to go to this restaurant/hotel” was used to measure the purchase intention by a seven-scale Likert scale (1 = Strongly disagree and 7 = Strongly agree) in the hotel and restaurant surveys, respectively. The propensity score weighted independent t-test was used to compare the purchase intention between the presence and absence of social distancing measures. The presence of social distancing measures at the restaurant or hotel was randomly manipulated by means of two scenarios that were framed to encourage participants to think about going to the targeted restaurant or hotel. Participants in different groups were presented with different manipulations of the presence versus absence of social distancing measure and indicated their responses based on the given scenario (See Supplementary material for scenario details).

4.2. Results and discussion

The sample size in the restaurant and hotel survey is 111 and 109, respectively. The demographics of the respondents can be found in Table 1. All the demographics and the visit frequencies were considered as the covariates of purchase intention. As shown in Fig. 2, the standardised mean difference of age and work experience in the hospitality industry is larger than 0.2 between the treatment and control groups in the restaurant sector. In the hotel sector, the effect sizes of the mean difference in age, gender and hospitality work experience are above 0.2. As a rule of thumb, the effect size of the mean difference which is smaller than 0.2 for binominal treatments can be recognized as marginal based on Cohen’s d measurement (Cohen, 2013); thus, the unweighted covariates are unbalanced between the treatment and control groups. After the weighting scheme, the effect sizes of all the mean difference are close to zero in both the restaurant and hotel sectors, indicating that the covariates are well balanced.

Given the same covariates, the only difference between the two groups is the practice of social distancing measures. The weighted independent t-statistics of the restaurant and hotel sector are 5.89 and 5.52, respectively, which are significant at the 1 % level, suggesting that the null Hypothesis is rejected. This implies that even after the lockdown has been lifted, the practice of social distancing measures in the restaurant and hotel sector can causally enhance the purchase intentions of potential customers.

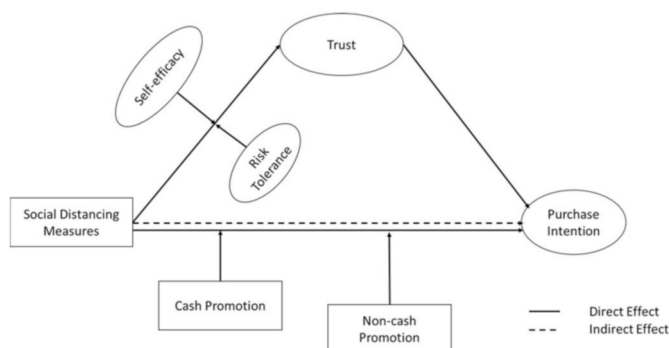


Fig. 1. The conceptual framework of the study.

Table 1
Demographic statistics.

	Phase 1		Phase 2	
	Restaurant	Hotel	Restaurant	Hotel
Gender				
Male	46.8 %	49.5 %	44.9 %	44.3 %
Female	53.2 %	50.5 %	55.1 %	55.7 %
Age				
18-24	6.3 %	3.7 %	5.5 %	9.0 %
25-34	12.6 %	19.3 %	12.6 %	13.5 %
35-44	19.8 %	13.8 %	17.3 %	19.6 %
45-54	19.8 %	18.3 %	18.5 %	20.2 %
55-64	20.7 %	19.3 %	21.1 %	19.1 %
65+	20.7 %	25.7 %	24.9 %	18.6 %
Highest Level of Education				
No formal qualification	1.8 %	2.8 %	3.3 %	1.9 %
GCSE/O-Levels or equivalent	18.0 %	15.6 %	17.1 %	16.7 %
AS/A-Levels or equivalent	8.1 %	12.8 %	16.2 %	11.9 %
Vocational qualification (e.g. NVQs, BTEC, etc.)	20.7 %	13.8 %	11.6 %	14.3 %
Further qualification (e.g. HNC, HND, etc.)	11.7 %	4.6 %	8.3 %	8.8 %
University degree (Undergraduate)	30.6 %	33.0 %	26.8 %	29.7 %
Graduate degree or above (Masters and/or PhD degree)	9.0 %	17.4 %	16.6 %	16.7 %
Annual Household Income before Tax				
Below £15,000	12.6 %	10.1 %	10.5 %	7.4 %
£15,000-£19,999	7.2 %	11.9 %	9.7 %	11.1 %
£20,000-£29,999	16.2 %	16.5 %	20.0 %	18.0 %
£30,000-£39,999	22.5 %	15.6 %	19.5 %	17.5 %
£40,000-£49,999	20.7 %	18.3 %	15.0 %	12.2 %
£50,000-£59,999	8.1 %	11.0 %	6.4 %	13.3 %
£60,000-£69,999	4.5 %	4.6 %	7.4 %	7.7 %
£70,000 or above	8.1 %	11.9 %	11.6 %	12.7 %
Hospitality Work Experience				
Working/Worked in the hospitality industry	13.5 %	11.0 %	11.2 %	11.4 %
Average Purchase Frequency in One Year (Restaurant/Hotel)				
Less than once a week/Less than one night	61.3 %	0.9 %	57.5 %	0.3 %
Once or twice a week/1-10 nights	30.6 %	48.6 %	33.3 %	45.4 %
3-4 times a week/10-29 nights	5.4 %	40.4 %	6.9 %	45.4 %
5-6 times a week/30-54 nights	1.8 %	8.3 %	1.9 %	8.8 %
Every day/55 nights and above	0.9 %	1.8 %	0.5 %	0.3 %
Sample Size	111	109	421	377

5. Phase 2: the moderated mediating effect of trust

5.1. Research design and measures

Phase 2 of the study employed a 3 (cash vs non-cash vs none) × 2 (social distancing vs none) between-subjects design, where each participant was exposed to one of the three and two interventions, respectively. Two surveys were conducted – one for restaurants and one for hotels. The measurement of purchase intention follows from Phase 1; the scales of trust, self-efficacy and risk tolerance are presented in

Table 2. Trust has different definitions and scales in various disciplines (Morgan & Hunt, 1994). The measurement of trust used in this study originates from dyadic trust which was proposed by Larzelere and Huston (1980). Morgan and Hunt (1994) introduced the nine items of dyadic trust into the marketing literature and Sparks and Browning (2011) further extended the scale into the hospitality context. As argued by Morgan and Hunt (1994), the nine items of dyadic trust in Larzelere and Huston (1980) covered reliability, integrity and confidence, which are the major facets of trust to the service; thus, they were selected to measure the trust to the targeted restaurant and hotel in this study. In the current study, the research context is related to COVID-19 and thus the scale of self-efficacy used focusses on the beliefs of the respondent's capability to deal with health risks such as skin cancer in Rimal and Real (2003) and H1N1 in Cho and Lee (2015). Similarly, the scale of risk tolerance is employed from medical care literature (Pines et al., 2010). Items related to trust and self-efficacy are seven-scale Likert scale (1 = Strongly disagree; 7 = Strongly agree), whereas six-scale is used to measure the risk tolerance (1 = Strongly disagree; 6 = Strong agree) which is consistent with the original literature. Although the application of constructs with various scale dimensions cannot be compared directly in the descriptive statistics, it forced respondents to evaluate scores independently across constructs which limits the common method variance bias. The Harman's single factor of the restaurant and hotel is 0.464 and 0.457, respectively, indicating that the common method variance bias is insignificant.

5.2. Results and discussion

As shown in Table 1, 421 and 377 respondents were involved in the restaurant and hotel survey, respectively. The descriptive statistics of the initial items are presented in Appendix 1. The result of the composite confirmatory analysis (CCA) is presented in Table 2. Four common items were removed from the measurement model of the restaurant and hotel survey, respectively because the loadings were less than 0.6. Likewise, one more item of the self-efficacy construct was removed in the hotel survey. As a result, all the values of composite reliability are larger than 0.7 and AVEs larger than 0.5. Furthermore, the absolute value of the largest correlation among constructs was less than AVEs. Thus, according to the cut-off values suggested by Hair et al. (2016), the two measurement models showed satisfying reliability and validity and thus, factor scores are extracted for further econometric analysis. Limited by space, the correlation matrices of constructs are available upon request.

5.2.1. Manipulation check

Phase 2 is a 3 × 2 between-subject design, thus the sample has been split into six groups. In the multinomial situation, the cut-off value of Cohen's d for the covariate balance changes to 0.1 (Cohen, 2013). As shown in Fig. 3, after weighting, the effect sizes of the standardized difference between groups for all the covariates are less than 0.1, indicating a satisfying balance between the treatment and control groups.

Since a 3 × 2 between-subject design was implemented, a weighted two-way ANOVA was estimated to examine the difference between the treatment effects. Fig. 4 presents the group means by social distancing measures and promotion strategies in the two surveys. The box plots demonstrate the means with corresponding 95 % confidence intervals. The dots beyond the boxes are observations outside the 95 % intervals. Significant differences between the presence and absence of social distancing measures on the purchase intention are observed in the restaurant (F = 106.55, p = 0.001) and hotel (F = 40.44, p = 0.001) sectors, but no difference was found across the different promotion strategies by a one-way ANOVA and follow-up post hoc tests. The results suggest that the variation of the purchase intention is mostly explained by the different practices of social distancing measures. The influence of promotion strategies on customers' behavioural intentions in the post-COVID-19 period is not as effective as observed by scholars pre-COVID-19 such as Yang and Mattila (2020). Thus, the implementation

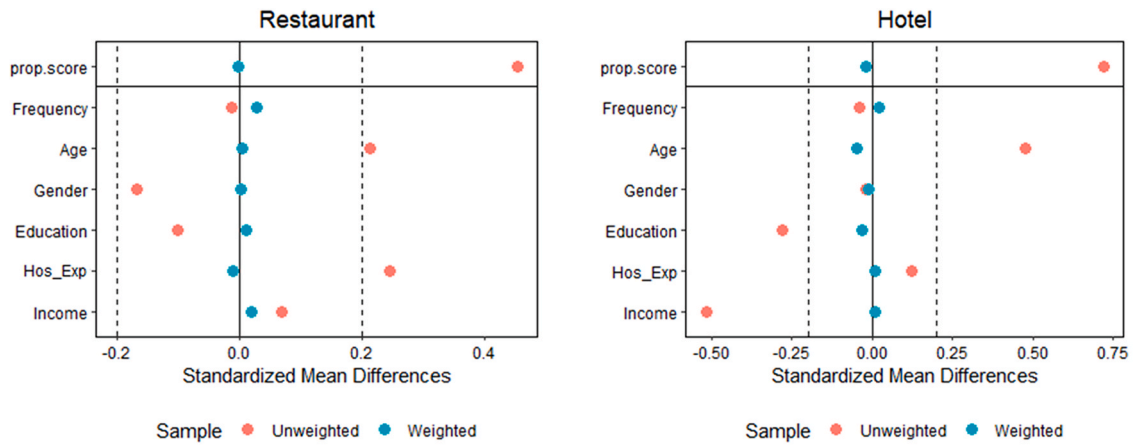


Fig. 2. Phase 1 covariate balance check.

Table 2
Phase 2 reliability and validity of the measurement model.

	Restaurant			Hotel		
	Loadings	Composite reliability	AVE	Loadings	Composite reliability	AVE
Trust		0.985	0.894		0.982	0.875
I think this restaurant/hotel would have high integrity.	0.930			0.914		
I believe this restaurant/hotel would be trustworthy.	0.945			0.916		
I believe this restaurant/hotel would be dependable.	0.955			0.950		
I believe this restaurant/hotel would be reliable.	0.965			0.951		
I believe this restaurant/hotel would be responsible.	0.936			0.936		
If I was to discuss this restaurant/hotel with others (friends, family, work associates), I would probably say positive things towards this restaurant/hotel.	0.937			0.924		
I would have confidence in this restaurant/hotel.	0.961			0.946		
This seems like a good quality restaurant/hotel.	0.934			0.943		
Risk Tolerance		0.934	0.825		0.917	0.787
I enjoy taking risks.	0.903			0.905		
Taking risks does not bother me if the gains involved are high.	0.907			0.891		
People have told me that I seem to enjoy taking chances.	0.915			0.865		
Self-efficacy		0.871	0.633		0.839	0.639
I am confident in my ability to protect myself from COVID-19.	0.921			0.888		
I have the willpower to engage in the suggested precautionary actions on hygiene and social distancing measures.	0.625					
I am confident that I can carry out the suggested precautionary actions on hygiene and social distancing measures.	0.749			0.764		
I am certain that I can control myself to reduce the chances of getting COVID-19.	0.856			0.734		

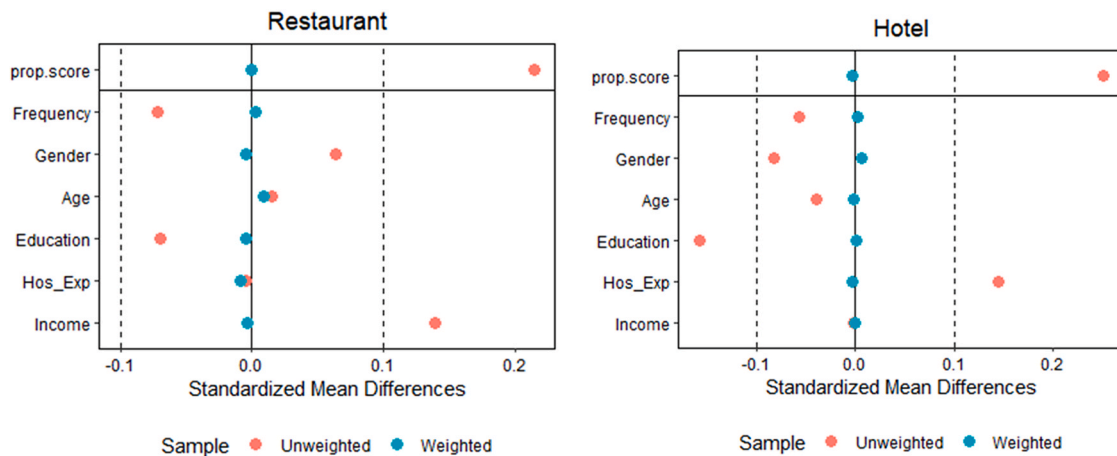


Fig. 3. Phase 2 covariate balance check.

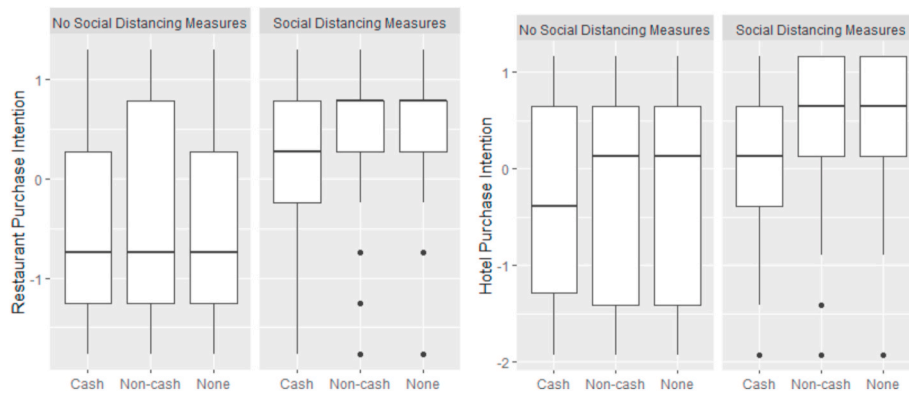


Fig. 4. Phase 2 group means by treatment effects.

of social distancing measures is more effective for the hospitality industry to reboot the market after the lockdown is lifted.

5.2.2. The moderating and mediating effects

The moderating and mediating effects are presented in Table 3 and Fig. 5, respectively. There is a significant moderating effect of risk tolerance on the trust in the targeted restaurant and hotel. In Fig. 5, the orange solid lines which represent the relationship between risk tolerance and trust when social distancing measures are present is much flatter than the blue dotted lines representing the absence of social distancing measures. This means that the impact of risk tolerance on trust is similar to the former situation but diversified in the latter simulation. When social distancing measures are absent, customers with higher risk tolerance will have more trust in the targeted restaurant and hotel. Regarding the moderating effect of self-efficacy, although the

Table 3 Phase 2 regression results.

Trust	Restaurant	Hotel	Z-statistic
Constant	-0.511 (-9.46) ***	-0.384 (-6.10) ***	-1.53
Social distancing measures	1.001 (13.16) ***	0.762 (8.55) ***	2.04**
Risk tolerance	0.394 (7.27) ***	0.326 (5.07) ***	0.81
Self-efficacy	0.067 (1.24)	0.100 (1.60)	-0.40
Social distancing measures *Risk tolerance	-0.344 (-4.45) ***	-0.242 (-2.71) ***	-0.86
Social distancing measures *Self-efficacy	0.243 (3.18) ***	0.167 (1.86) *	0.64
R ²	0.389	0.265	
Adj-R ²	0.381	0.255	
F-statistic	52.75***	26.71***	
Purchase Intention			
Constant	-0.090 (-1.20)	0.009 (0.123)	-0.94
Social distancing measures	0.173 (1.65) *	-0.009 (-0.83)	1.73*
Trust	0.752 (23.74) ***	0.803 (25.71) ***	-1.15
Cash promotion	0.043 (0.44)	0.027 (0.25)	0.11
Non-cash pomotion	0.042 (0.42)	-0.007 (-0.07)	0.35
Social distancing measures*cash promotion	-0.103 (-0.74)	-0.123 (-0.79)	0.10
Social distancing measures*non-cash promotion	-0.062 (-0.44)	0.044 (0.30)	-0.52
R ²	0.666	0.644	
Adj-R ²	0.661	0.638	i
F-statistic	137.4***	111.5***	
Indirect effect of trust	0.779 (11.06) ***	0.615 (7.67) ***	1.54

Note: Figures in parenthesis are t-statistics. *, ** and *** indicate significance at 10 %, 5 % and 1 % significant levels, respectively.

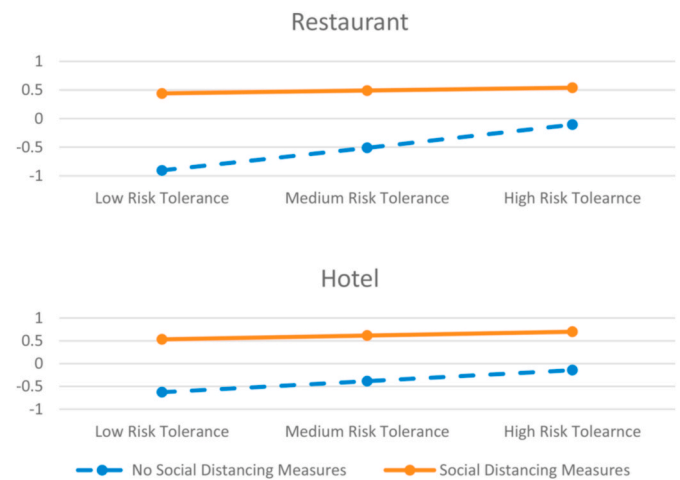


Fig. 5. Phase 2 moderating effects of risk tolerance.

interactions between self-efficacy and social distancing measures are significant, the main effects are not. This indicates that self-efficacy can enhance the impact of social distancing measures on trust, but the magnitude of the moderating effect needs to be further explored in future research. As a result, the moderating effect graph of self-efficacy is omitted.

The practice of social distancing measures has a positive impact on the trust in targeted restaurant and hotel; the influence on the restaurant sector is significantly stronger than the hotel sector at 5 % significant level (z = 2.04). The social distancing measures also have a stronger impact (z = 1.73) at 10 % significant level on the direct relationship with the purchase intention in the restaurant sector (0.173) than the hotel sector (-0.009), but the relationship is only significant in the former sector. Trust has a significant impact on the purchase intention in both sectors, but the difference is not significant. The indirect effect is 0.897 in the restaurant sector and 0.538 in the hotel sector, respectively, and the sectoral difference is insignificant. Thus, a partial mediating effect is observed in the restaurant sector and a full mediating effect in the hotel sector.

5.2.3. Discussion

The findings of Phase 2 suggest that Hypothesis 1 is supported in the restaurant sector but rejected in the hotel sector. Hypothesis 2 and 3b are supported whereas Hypothesis 3a and 4 are rejected. Trust partially mediates the impact of social distancing measures on the purchase intention in the restaurant sector but fully mediates the impact in the hotel sector. Compared with the experience in hotels, the experience in restaurants is more crowded and involves more human interactions,

which implies higher perceived risks and thus the influence of social distancing measures on trust and purchase intention are statistically larger compared to hotels. Risk tolerance positively moderates the effect of social distancing measures on trust, indicating that even with no social distancing measures, customers with higher risk tolerance will have stronger trust in the targeted restaurant and hotel (Hong & Cha, 2013). Although significant moderating effects were observed on self-efficacy, the magnitude needs to be further confirmed in future research.

Interestingly, promotion strategies did not have significant moderating effects on purchase intention, which differ from the previous literature (Yang & Mattila, 2020). This means that compared to pre-COVID-19 after the hospitality market reopens, customers will have more concerns about the health and safety of the service provider rather than promotion offers. From an economic perspective, for a normal product or service, a cheaper price will always be preferred by consumers, given other conditions stay the same. In the current study, the finding does not go against the economic principles but suggests that social distancing measures are more important than monetary advantages post-lockdown.

6. Conclusions

The hospitality industry is a highly contact-intensive service industry where the interaction between the customer and provider is inevitable, and thus the government lockdown policy has affected the industry greatly. To our best knowledge, at the time of writing, this is the first attempt to investigate the impact of the social distancing measures on the purchase intention of customers in the post-COVID-19 period, especially in the context of hospitality. Surprisingly, the direct effect between the two variables was significant but marginal in the restaurant sector and insignificant in the hotel sector. The finding suggests that the influence of social distancing measures on purchase intentions is dominant by the mediating effect of the trust in the targeted restaurant or hotel. This means that only the customers' trust to the hospitality service providers that ensure social distancing measures will increase their purchase intentions as the presence of social distancing measures reduces their level of perceived risk. A finding that has contradicted our expectation is that promotion strategies do not moderate the relationship between social distancing measures and purchase intentions. This indicates that when the hospitality market reopens, the presence of social distancing measures in hospitality businesses is a more effective intervention than promotion strategies to reboot the industry and rebuild customers' trust. In addition, it can be argued that promotion strategies are not closely associated with an individual's perceived risk. Given the circumstance, the findings infer that a consumer's purchase intention depends on the level of perceived risks (i.e. the presence or absence of social distancing measures in the service provider) and the trust to that service provider.

The originality of the study is in three-folds. First, this study brings new knowledge to the understanding of the relationship between the practice of social distancing measures and purchase intentions. Although the sectoral effects of social distancing during the pandemic have been researched (Barrot et al., 2020), its impact on consumers' behaviour and the hospitality industry in the post-COVID-19 is unknown. By using an experimental design method, this study sheds light not only on the above research gap but also further elaborates the transmission mechanism from the practice of social distancing measures (i.e. an individual's perceived risk) to purchase intentions, which is mediated by the trust in the targeted restaurant and hotel. The identified mechanism deepens the understanding of the perceived risk and purchase intentions in pandemics identified by previous literature such as Cahyanto et al. (2016) and Li et al. (2020).

Second, this research demonstrates the novel role of promotion strategies in moderating the linkage between social distancing measures and purchase intention. Although hospitality products and services remain as normal goods since the COVID-19 outbreak, considering the

intensive human contact when dining in restaurants or staying in hotels, price incentives were found not as effective as social distancing measures to enhance the purchase intentions of customers post-COVID-19. Such newly generated knowledge can help us to better understand the changes in consumers' behaviour in the post-COVID-19 era.

Lastly, this is the first attempt to introduce the PSW scheme into the experimental design in tourism and hospitality studies. After weighting the treatment and control groups using the propensity scores, covariates between the two groups were homogeneous. Thus, the sampling bias within the sample was diminished and the difference between the two groups could only be caused by the treatment effect, meaning that the causal relationship between the treatment effect and the dependent variable was identified. Additionally, the multi-stages of this study required a multi-sampling technique, which addressed the sampling bias in each stage. Thus, the PSW scheme provides a practical way to identify the causal relationship in experimental designs.

The findings of this study also generate valuable practical implications for the hospitality industry, particularly the hospitality businesses in the UK. First, the practice of social distancing measures after the lift of the lockdown policy is a necessary condition to increase customers' purchase intentions as it can lower the perceived (health) risks. The more important and effective strategy to recover from the pandemic crisis is to build up customers' trust to the business. Although social distancing measures are present in all UK restaurants and hotels, information transparency regarding satisfied safety and health measures should be delivered to potential customers by organising virtual marketing activities or advertisements and using digital tools to effectively communicate with customers and deliver trust and increase their level of risk tolerance. Second, although the effect of social distancing measures overrides promotions, promotion strategies can be effective to customers who are on loyalty programmes or are familiar with the restaurant or hotel. The Eat Out to Help Scheme launched by the UK government in the summer of 2020 is a good example of practice to recover the industry by directly subsidising the bills of customers. For those customers, they have already built up a level of trust to the restaurant or hotel, and thus promotions could attract them back post-lockdown. The implications of this study are not limited to the hospitality industry and other sectors in the service industry can also be benefited.

This study took initial steps to explore the moderated mediating role of trust on the relationship between the practice of social distancing measures and purchase intentions. Although novel findings are obtained, the findings are based on purchase intentions, which are not real purchasing behaviours. Results derived from on-site experiments and surveys in restaurants and hotels will help us to better understand the relationships among variables. In future studies, the sensitivity of consumer behaviour to e-word-of-mouth signals and a comparative study on the different consumption frequencies and their impact on post-COVID-19 purchase intentions could be further investigated. Different types of promotions, e.g. non-monetary, which can help build consumer trust towards the service providers were not examined in this current study but considering the progression of the pandemic and different types of control measures, future research can explore the roles of non-monetary promotions on customer relationships and trust-building via contact-free and digital means. Lastly, the study sample limits to the UK residents. Considering the different severity of the pandemic and lockdown policies in various countries/regions and corresponding effects on people's perceptions such as self-efficacy and risk-tolerance, COVID-19 specified scales should be developed and samples should be collected in different destinations and time periods to generalise the findings of this study in future research. Given the ongoing global spread of COVID-19, this study could be widely applicable to various destinations and continuously provide informative implications for the hospitality industry.

Credit author statement

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None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tourman.2021.104416>.

Appendix 1. Descriptive Statistics of Items in Phase 2

	Restaurant (N = 421)				Hotel (N = 377)			
	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis
Visit Intention	4.46	1.96	-0.42	-1.11	4.75	1.94	-0.64	-0.61
Trust_1	4.67	1.8	-0.62	-0.63	4.83	1.66	-0.76	0.13
Trust_2	4.31	1.81	-0.21	-0.96	4.41	1.85	-0.31	-0.87
Trust_3	4.64	1.72	-0.57	-0.56	4.78	1.58	-0.67	0.06
Trust_4	4.64	1.71	-0.63	-0.5	4.74	1.58	-0.73	0.21
Trust_5	4.62	1.72	-0.57	-0.57	4.80	1.59	-0.76	0.23
Trust_6	4.62	1.85	-0.7	-0.59	4.76	1.78	-0.72	-0.29
Trust_7	4.64	1.75	-0.55	-0.6	4.59	1.69	-0.56	-0.33
Trust_8	4.57	1.82	-0.58	-0.69	4.66	1.68	-0.65	-0.29
Trust_9	4.69	1.70	-0.64	-0.4	4.73	1.68	-0.74	0.01
Selfefficacy_1	5.58	1.23	-1.06	1.42	5.60	1.19	-0.82	-0.04
Selfefficacy_2	6.10	1.02	-1.51	3.19	6.03	1.05	-1.39	1.44
Selfefficacy_4	6.13	0.98	-1.33	2.42	5.98	1.08	-1.4	2.28
Selfefficacy_5	6.01	1.10	-1.49	2.76	6.01	1.06	-1.49	1.74
Selfefficacy_6	5.96	1.10	-1.54	3.51	5.90	1.07	-0.94	0.6
Risk Tolerance_1	3.37	1.39	-0.04	-0.73	3.44	1.26	-0.05	-0.6
Risk Tolerance_2	2.67	1.08	0.46	0.06	2.68	1.03	0.55	0.29
Risk Tolerance_3	3.49	1.39	-0.07	-0.78	3.59	1.30	-0.2	-0.56
Risk Tolerance_4	2.13	0.94	1.06	2.35	2.20	0.91	0.66	0.76
Risk Tolerance_5	3.35	1.38	-0.02	-0.76	3.36	1.34	0.16	-0.62
Risk Tolerance_6	2.74	1.16	0.4	-0.22	2.74	1.11	0.32	-0.28

Impact statement

This paper focusses on the recovery of the hospitality sector as it reopens as the lockdown of COVID-19 eases in many countries. The tourism and hospitality sector is one of the major sectors that have been affected by the pandemic, yet it is a key driver of revenue and economic growth in many nations. Thus, the recovery of the sector is essential for the economic recovery. The novel knowledge generated by the study includes the relationship between the practice of social distancing measures and purchase intention in the restaurant and hotel sectors, mediated by the trust in the service provider. With the new knowledge and understanding of consumer behaviour in the post-lockdown COVID-19 period, this can inform industry practitioners and policy makers with strategic interventions to enhance purchase intentions and drive more spending in hospitality and tourism activities.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)

Bandura, A. (1991). *Social cognitive theory of self-regulation* (pp. 248–287). *Organizational Behavior and Human Decision Processes*. <http://www.uky.edu/~eushe2/BanduraPubs/Bandura1991OBHDP.pdf>.

Barrot, J.-N., Grassi, B., & Sauvagnat, J. (2020). Sectoral effects of social distancing. *Covid Economics*, 3. <https://ssrn.com/abstract=3569446>.

BFPG. (2020). *COVID-19 timeline*. British Foreign Policy Group. <https://bfpgrp.co.uk/2020/04/covid-19-timeline/>.

Cahyanto, I., Wiblishauser, M., Pennington-Gray, L., & Schroeder, A. (2016). The dynamics of travel avoidance: The case of Ebola in the U.S. *Tourism Management Perspectives*, 20, 195–203. <https://doi.org/10.1016/j.tmp.2016.09.004>

Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication*, 25(8), 661–669. <https://doi.org/10.1080/10410236.2010.521906>

Cho, H., & Lee, J.-S. (2015). The influence of self-efficacy, subjective norms, and risk perception on behavioral intentions related to the H1N1 flu pandemic: A comparison between Korea and the US. *Asian Journal of Social Psychology*, 18(4), 311–324. <https://doi.org/10.1111/ajsp.12104>

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Academic Press.

Comegys, C., Hannula, M., & Väisänen, J. (2009). Effects of consumer trust and risk on online purchase decision-making: A comparison of Finnish and United States students. *International Journal of Management*, 26(2), 295. <https://www.questia.com/read/1P3-1874986651/effects-of-consumer-trust-and-risk-on-online-purchase>.

Corona Tracker. (2021). *United Kingdom COVID-19. Corona tracker*. <https://www.coronatracker.com/country/united-kingdom/>.

Cui, B., Yang, K., & Chou, T. (2016). Analyzing the impact of price promotion strategies on manufacturer sales performance. *Journal of Service Science and Management*, 9(2), 182–187. <https://doi.org/10.4236/jssm.2016.92022>, 0.

Daellenbach, K., Parkinson, J., & Krisjanous, J. (2018). Just how prepared are you? An application of marketing segmentation and theory of planned behavior for disaster preparation. *Journal of Nonprofit & Public Sector Marketing*, 30(4), 413–443. <https://doi.org/10.1080/10495142.2018.1452830>

De Young, R. (2000). Expanding and evaluating motives for environmentally responsible behavior. *Journal of Social Issues*, 56(3), 509–526. <https://doi.org/10.1111/0022-4537.00181>

Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. (2000). A meta-analysis of research on protection motivation theory. *Journal of Applied Social Psychology*, 30(2), 407–429. <https://doi.org/10.1111/j.1559-1816.2000.tb02323.x>

- Foroudi, P., Tabaghdehi, S. A. H., & Marvi, R. (2021). The gloom of the COVID-19 shock in the hospitality industry: A study of consumer risk perception and adaptive belief in the dark cloud of a pandemic. *International Journal of Hospitality Management*, 92, 102717. <https://doi.org/10.1016/j.ijhm.2020.102717>
- Gerend, M. A., & Shepherd, J. E. (2012). Predicting human papillomavirus vaccine uptake in young adult women: Comparing the health belief model and theory of planned behavior. *Annals of Behavioral Medicine*, 44(2), 171–180. <https://doi.org/10.1007/s12160-012-9366-5>
- Han, X., Kwortnik, R. J., & Wang, C. (2008). Service loyalty. *Journal of Service Research*, 11(1), 22–42. <https://doi.org/10.1177/1094670508319094>
- Han, S. H., Nguyen, B., & Lee, T. J. (2015). Consumer-based chain restaurant brand equity, brand reputation, and brand trust. *International Journal of Hospitality Management*, 50, 84–93. <https://doi.org/10.1016/j.ijhm.2015.06.010>
- Harris, K. E., Grewal, D., Mohr, L. A., & Bernhardt, K. L. (2006). Consumer responses to service recovery strategies: The moderating role of online versus offline environment. *Journal of Business Research*, 59(4), 425–431. <https://doi.org/10.1016/j.jbusres.2005.10.005>
- Hong, I. B., & Cha, H. S. (2013). The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, 33(6), 927–939. <https://doi.org/10.1016/j.ijinfomgt.2013.08.007>
- Huang, L., Han, Y., Zhou, Y., Gutscher, H., & Bi, J. (2013). How do the Chinese perceive ecological risk in freshwater lakes? *PLoS ONE*, 8(5), Article e62486. <https://doi.org/10.1371/journal.pone.0062486>
- Inouye, J. (2014). *Risk Perception: Theories, strategies and next steps*. <https://www.theca.mpbellinstitute.org/wp-content/uploads/2017/05/Campbell-Institute-Risk-Percepti-on-WP.pdf>
- Jiang, X., Elam, G., Yuen, C., Voeten, H., De Zwart, O., Veldhuijzen, I., & Brug, J. (2009). The perceived threat of sars and its impact on precautionary actions and adverse consequences: A qualitative study among Chinese communities in the United Kingdom and The Netherlands. *International Journal of Behavioral Medicine*, 16(1), 58–67. <https://doi.org/10.1007/s12529-008-9005-5>
- Karabulut, G., Bilgin, M. H., Demir, E., & Doker, A. C. (2020). How pandemics affect tourism: International evidence. *Annals of Tourism Research*, 84, 102991. <https://doi.org/10.1016/j.annals.2020.102991>
- Larzelere, R. E., & Huston, T. L. (1980). The dyadic trust scale: Toward understanding interpersonal trust in close relationships. *Journal of Marriage and Family*, 42(3), 595. <https://doi.org/10.2307/351903>
- Lee, C. K., Song, H. J., Bendle, L. J., Kim, M. J., & Han, H. (2012). The impact of non-pharmaceutical interventions for 2009 H1N1 influenza on travel intentions: A model of goal-directed behavior. *Tourism Management*, 33(1), 89–99. <https://doi.org/10.1016/j.tourman.2011.02.006>
- Li, J., Nguyen, T. H. H., & Coca-Stefaniak, J. A. (2020). Coronavirus impacts on post-pandemic planned travel behaviours. *Annals of Tourism Research*, Article 102964. <https://doi.org/10.1016/j.annals.2020.102964>
- Liu, A., Vici, L., Ramos, V., Giannoni, S., & Blake, A. (2021). Visitor arrivals forecasts amid COVID-19: A perspective from the europe team. *Annals of Tourism Research*, 88, 103182. <https://doi.org/10.1016/j.annals.2021.103182>
- McKnight, D. H., & Chervany, N. L. (2001). What trust means in E-commerce customer relationships: An interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(Issue 2).
- Mitchell, V. (1999). Consumer perceived risk: Conceptualisations and models. *European Journal of Marketing*, 33(1/2), 163–195. <https://doi.org/10.1108/03090569910249229>
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20. <https://doi.org/10.2307/1252308>
- Morrison, L. G., & Yardley, L. (2009). What infection control measures will people carry out to reduce transmission of pandemic influenza? A focus group study. *BMC Public Health*, 9(1), 258. <https://doi.org/10.1186/1471-2458-9-258>
- Mou, J., Shin, D. H., & Cohen, J. F. (2017). Trust and risk in consumer acceptance of e-services. *Electronic Commerce Research*, 17(2), 255–288. <https://doi.org/10.1007/s10660-015-9205-4>
- Mullin, R., & Cummins, J. (2010). *Sales promotion: How to create, implement and integrate campaigns that really work* (4th ed.). Kogan Page Publishers.
- Pines, J. M., Isserman, J. A., Szyld, D., Dean, A. J., McCusker, C. M., & Hollander, J. E. (2010). The effect of physician risk tolerance and the presence of an observation unit on decision making for ED patients with chest pain. *American Journal of Emergency Medicine*, 28(7), 771–779. <https://doi.org/10.1016/j.ajem.2009.03.019>
- Qiu, R. T. R., Park, J., Li, S. N., & Song, H. (2020). Social costs of tourism during the COVID-19 pandemic. *Annals of Tourism Research*, 84, 102994. <https://doi.org/10.1016/j.annals.2020.102994>
- Rimal, R. N., & Real, K. (2003). Perceived risk and efficacy beliefs as motivators of change. *Human Communication Research*, 29(3), 370–399. <https://doi.org/10.1111/j.1468-2958.2003.tb00844.x>
- Rosenbaum, P. R., & Rubin, D. B. (1983). *The central role of the propensity score in observational studies for causal effects* (Vol. 70). <https://academic.oup.com/biomet/article-abstract/70/1/41/240879>
- Rosenstock, I. M. (1974). The health belief model and preventive health behavior. *Health Education Monographs*, 2(4), 354–386. <https://doi.org/10.1177/109019817400200405>
- Setbon, M., & Raude, J. (2010). Factors in vaccination intention against the pandemic influenza A/H1N1. *The European Journal of Public Health*, 20(5), 490–494. <https://doi.org/10.1093/eurpub/ckq054>
- Sparks, B. A., & Browning, V. (2011). The impact of online reviews on hotel booking intentions and perception of trust. *Tourism Management*, 32(6), 1310–1323. <https://doi.org/10.1016/j.tourman.2010.12.011>
- Teasdale, E., Santer, M., Geraghty, A. W. A., Little, P., & Yardley, L. (2014). Public perceptions of non-pharmaceutical interventions for reducing transmission of respiratory infection. *BMC Public Health*, 14(1), 589. <https://doi.org/10.1186/1471-2458-14-589>
- Viglia, G., & Dolnicar, S. (2020). A review of experiments in tourism and hospitality. *Annals of Tourism Research*, 80, 102858. <https://doi.org/10.1016/j.annals.2020.102858>
- Walrave, M., Waeterloos, C., & Ponnet, K. (2020). Adoption of a contact tracing app for containing COVID-19: A health belief model approach. *JMIR Public Health Surveill*, 6(3), Article e20572. <https://doi.org/10.2196/20572>
- Wang, S. W., Ngamsiriudom, W., & Hsieh, C.-H. (2015). Trust disposition, trust antecedents, trust, and behavioral intention. *Service Industries Journal*, 35(10), 555–572. <https://doi.org/10.1080/02642069.2015.1047827>
- Xie, K., Liang, B., Dulebenets, M. A., & Mei, Y. (2020). The impact of risk perception on social distancing during the COVID-19 pandemic in China. *International Journal of Environmental Research and Public Health*, 17(17), 6256. <https://doi.org/10.3390/ijerph17176256>
- Yang, B., & Mattila, A. S. (2020). How rational thinking style affects sales promotion effectiveness. *International Journal of Hospitality Management*, 84, 102335. <https://doi.org/10.1016/j.ijhm.2019.102335>
- Yang, Y., Zhang, H., & Chen, X. (2020). Coronavirus epidemic and tourism: Dynamic stochastic general equilibrium modeling of infectious disease outbreak. *Annals of Tourism Research*, Article 102913. <https://doi.org/10.1016/j.annals.2020.102913>
- Yang, W., Zhang, L., & Mattila, A. S. (2016). Luxe for less: How do consumers react to luxury hotel price promotions? The moderating role of consumers' need for status. *Cornell Hospitality Quarterly*, 57(1), 82–92. <https://doi.org/10.1177/1938965515580133>



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