How COVID-19 case fatality rates have shaped perceptions and travel intention?

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Abstract

This study investigates the perceptions shaped by media towards trust, crisis management, healthcare system, and solidarity, as well as willingness to support and travel intention across two groups of countries with higher and lower COVID-19 case fatality rates. The findings showed more positive perceptions towards trust, crisis management, healthcare system, and solidarity in those countries with lower case fatality rate. The results also demonstrated the positive effects of trust and solidarity on willingness to support a destinations and indirect effects on travel intention for the countries with higher rate of case fatality. Theoretical and practical implications post pandemic are also discussed.

Keywords: COVID-19 crisis, Case Fatality Rate; perceptions, crisis management, travel intention

1. Introduction

Since its detection in Wuhan in December 2019, the novel coronavirus disease (COVID-19) has spread globally and affected all countries in some way (Gössling, Scott, & Hall, 2020; Sigala, 2020). Compared to the previous public health epidemics, the specific nature of COVID-19 in terms of both the number of infected people and the spatial range of epidemic areas and more importantly its declaration as a pandemic by the WHO (WHO, 2020) have all led to the extensive media coverage of this outbreak since its onset (Lee & Kim, 2020). Furthermore, media representations of countries' various tactics in combating this outbreak have formed different pictures of countries which strongly influences perceptions of the outbreaks and its impacts (Hall, 2010; Lee & Kim, 2020). This is particularly important as

media can play a significant role in shaping individual perceptions and their image of a tourism destination especially in times of crisis (Ritchie & Jiang, 2019).

Media framing of crises has the power to rapidly alter destination images (Hall, 2010), including the effectiveness of crisis management (Ritchie & Jiang, 2019; Hall & Prayag, 2021). For example, a recent study related to the COVID-19 shows that the international image of the USA plummeted due to their ineffective handling of the pandemic while New Zealand and Germany success have a positive media image as a result of their approaches (Wike et al., 2020).

Despite the growing body of research on COVID-19 and tourism, there has been little research that has analysed how the reported COVID-19 Case Fatality Rate (CFR) (the proportion of deaths among identified confirmed cases) along with national responses in handling the pandemic may affect future travel intentions post pandemic. Until now, the existing studies on COVID-19 and tourism have been focused on impacts on tourism (e.g., Sigala, 2020; Gössling et al., 2020; Hall et al., 2020; Hall & Seyfi, 2021), destination-image recovery processes (e.g., Yeh, 2020; Prayag, 2020; Higgins-Desbiolles, 2020) and estimating impacts and changes in tourist behaviours (e.g., Wen et al., 2020). Nonetheless, to the best of authors knowledge, no study has yet empirically accessed tourist's intentions to support and travel to countries with low and high CFR. Rates of case fatalities typically represents the extent of disease severity and is viewed as a measure of the ability of a virus to infect or damage a host in infectious disease such as COVID-19, where comparatively high rates are indicative of relatively poor outcomes of countries (Reich et al., 2012). Thus, to fill these gaps in the literature, this study uses a cross-country analysis of eight countries with different crisis management approaches and rates of case fatality to investigate how perceived national responses to handling the COVID-19 pandemic has affected the potential tourists' perception and induced desire to travel post pandemic. To achieve this, the Belief-Desire-Intention (BDI)

theoretical framework (Bratman, 1988), was used as an integrated model of trust, solidarity, healthcare system and crisis management effects to compare willingness to support a destination and subsequent travel intention between countries with higher and lower CFR.

The outcomes of this research highlight the potential influence of media information on the COVID-19 pandemic at different destinations on individuals' post-crisis travel intention and their conative behaviour. This is particularly important as the perceived public knowledge of the measures introduced to combat the COVID-19 pandemic can be expected to influence future travel intention.

2. Literature review and hypotheses development

2.1. Theoretical framework

Originally developed by Bratman (1988), the Belief-Desire-Intention (BDI) model has been a widely studied philosophical theory of practical reasoning and behavioral intention (Jaques & Vicari, 2007; Bhattacherjee & Barfar, 2011; Koo, Chung, & Kim, 2015; Koo et al., 2016). According to this model, belief represents the 'informative' component and refers to perception and information concerning how the environment is responsive to behaviors and interventions (Bhattacherjee & Barfar, 2011). Desire represents the 'motivational state' of the system and reflects the aims to be accomplished by actions. Intention captures the 'deliberative component' of the system and reflects what an individual has chosen to do.

The BDI model has been widely used as a theoretical framework in consumer behavior (Perugini & Bagozzi, 2004; Jaques & Vicari, 2007) and computer science (Herzig, Lorini, Perrussel, & Xiao, 2017). Tourism studies have mainly applied the BDI framework to explain media-related behaviors. For instance, in their study on the effects of media exposure on intention to visit South Korea, Koo et al. (2016) argued that exposure to media stimulates the willingness of prospective tourists to visit a destination.

The BDI model therefore offers a useful means of explaining the behaviors of tourists exposed to media. The present study adopts this theoretical framework to investigate how a country's management of the COVID-19 pandemic helps construct beliefs regarding a destination. This belief can be a motivator for shaping a behavioral intention (i.e. the desire to visit a destination). This is because how governments provide information and communication about the infection and mortality rate of COVID-19 as well as openness and transparency of such information are crucial in forming a perception of a country and perceived trust (Curtin & Gaither, 2007; Ang, Isar, & Mar, 2015). A country's handling of the COVID-19 pandemic (e.g. diagnosis and treatment of the virus, forceful and rapid response) as well its healthcare system overall have been significant in the perception people hold of a country. For example, a study by the Pew Research Center referring to the COVID-19 pandemic found that the reputation of the USA has fallen globally due to its coronavirus handling (Wike et al., 2020). More particularly within the COVID-19 pandemic, solidarity between people and people and government in the worst affected countries gained special media attention which might affect the perception of such countries. Consequently, this study aims to develop an integrated model that links trust, crisis management, healthcare system and solidarity to tourists' intended travel behavior post pandemic across countries with higher and lower COVID-19 related CFR.

2.2. Willingness to support a destination and travel intention

Travel intention is an individual's intent to travel or commitment to travel (Jang et al., 2009) and is "the subjective probability of whether a customer will or will not take certain actions that are related to a tourist service" (Moutinho, 1987, p.11). Studies suggest that a positively held image of a destination can trigger desire to visit and influence tourists' willingness to support a destination (Chen & Tsai, 2007) by revisiting and recommending the destination to others (Chen and Tsai, 2007; Prayag et al., 2017). Tourist's willingness to support a destination

has become increasingly more fundamental for the success of a destination in post disaster recovery strategies (Mair, Ritchie, & Walters, 2016). The previous studies showed that tourists participation in forming and restoring the image of a destination through social media communication (e.g. sharing experiences, destination brand awareness, promoting destination) is of a key focus for Destination Management Organizations (DMOs) in post crisis plan (e.g. Mair et al., 2016; Yeh, 2020). Research has demonstrated several factors in shaping travel intentions including familiarity (Horng et al., 2012); destination trust (Abubakar & Ilkan, 2016); eWOM (Ye, Law, & Gu, 2009) and cognitive beliefs (Nadeau et al., 2008). Such studies suggest that a positively held destination image plays an important role in the public perception of a particular country. It is also argued that major crisis such as warfare and epidemics often changes destination image in the short term (Hall, 2010). Similarly, the media's portrayal of different national responses to COVID-19 is believed to affect the image of a country given that the media leverages the mental structure that helps people make sense of the world (Scheufele, 1999). For instance, the findings of a Pew Research Center poll showing public perceptions of the USA in 13 countries highlight that the American handling of COVID-19 has influenced international public opinion toward the country (Wike et al., 2020). Therefore, we posit that there is a significant difference in willingness to support and travel intention between countries with higher CFR and those with lower CFR and suggest the following hypotheses:

H1: There is a significant difference in the level of intention to travel to a destination between countries with higher CFR and those with lower CFR.

H2: There is a significant difference in the level of willingness to support a destination between countries with higher CFR and those with lower CFR.

H3: There is a significant difference for the effect of willingness to support a destination on intention to travel to a destination between countries with higher CFR and those with lower CFR.

2.3. Trust, willingness to support, and intention to travel to a destination

Morgan and Hunt (1994, p. 23) define trust as "one party's confidence in an exchange partner's reliability and integrity". Trust has been viewed as an effective tool to minimize uncertainty and the perception of risk (Han & Hyun, 2015). The association between trust and the travel intention has been widely recognized by previous research. For instance, Han and Hyun (2015) argue that travelers are more likely to visit destinations they feel trustworthy and reliable. Abubakar et al. (2016) came to similar conclusions and their findings highlighted the important effect of destination confidence on the intention to revisit. In the COVID-19 outbreak, public trust in government pandemic management measures has been crucial to their acceptance and implementation (Fancourt, Steptoe, & Wright, 2020). Therefore, we suggest that trust can influence willingness to support a destination (desire) and travel intention (intention), with the effects of trust on intention being mediated by desire (e.g., willingness to support a destination). Given the extant literature and the BDI model, the following hypothesis is proposed:

H4$_a$: There is a significant difference in the level of trust between countries with higher CFR and those with lower CFR.

H4$_b$: There is a significant difference for the effect of trust on willingness to support a destination between countries with higher CFR and those with lower CFR.

H4$_c$: There is a significant difference for the indirect effect of trust on intention to travel to a destination through willingness to support a destination between countries with higher CFR and those with lower CFR.

2.4. Crisis management, willingness to support, and intention to travel to a destination

In the aftermath of declaration of the COVID-19 as a pandemic by the World Health Organization (WHO) and the rapid spread of the virus governments worldwide took preventive actions to combat the virus. While the leaders of some countries such as the USA, Britain and France used war-like language in their COVID-19 response, some others such as New Zealand focused on working together and kindness (Branicki, 2020). However, a few leaders in countries such as Brazil and Mexico were criticized for not taking the situation seriously and minimizing the threat of COVID-19 (Branicki, 2020) or sidelining experts (Christensen & Lægreid, 2020). At the same time, there were other countries such as South Korea (Kye & Hwang, 2020) and Norway (Christensen & Lægreid, 2020) which were successful in portraying a positive image of their country as a result of their COVID-19 intervention measures. Nevertheless, effective crisis management often requires governments to tackle crises while facing criticism from public and media (Kye & Hwang, 2020). Similarly, Christensen and Lægreid (2020) argue that managing the COVID-19 crisis is a delicate balance between governance capacity and legitimacy. In other words, effective crisis management requires government institutions preparedness, coordination, and regulatory capacity (governance capacity) while restoring individual's trust in government approaches in dealing with the crisis (governance legitimacy).

As the world nations continue to fight against the COVID-19 pandemic, traveling to and within many countries are restricted (Seyfi, Hall, & Shabani, 2020). However, effective crisis management and positive communication, together with health measures such as vaccinations, can result in successful post-crisis renewal and image restoration (Ulmer & Sellnow, 2002). It is particularly important as overall destination image directly affects travel intentions to a destination (Chen & Tsai, 2007), and tourists' perception of destination risk plays a vital role in their travel intention. Such behaviour is important as individuals tend to avoid any foreseen

risks in their travel. These issues are particularly important in the case of the COVID-19 crisis as even when travel is allowed, it is expected that individuals will avoid visiting perceived high-risk destinations (Hotel et al., 2020). In such cases, negative information and imagery shaped by media, Word of Mouth (WOM) or other resources can influence individuals who have not fully formed their perceptions towards a destination (Zenker, von Wallpach, Braun, & Vallaster, 2019). However, altering such perceptions can be challenging (Zenker et al., 2019).

Destination image can be improved when local government and destination managers work towards promoting a positive image which in turn affect tourists' perception and travel intention (Pappas & Papatheodorou, 2017). For example, in the case of South Korea the government provided COVID-19 information and health resources to both residents and visitors (Choi, Lee, & Jamal, 2021). Individuals' perceptions of a destination can also indirectly affect travel intention through willingness to support the destination (Hall & Prayag, 2021). Therefore, we suggest that crisis management can influence perceptions towards willingness to support a destination (desire) and travel intention (intention), while the effects of crisis management on travel intention can also be mediated by desire (willingness to support a destination). Given the extant literature and support from the BDI model, we posit the following hypotheses:

H5$_a$: There is a significant difference in the level of crisis management between countries with higher CFR and those with lower CFR.

H5$_b$: There is a significant difference for the effect of crisis management on willingness to support a destination between countries with higher CFR and those with lower CFR.

H5c: There is a significant difference for the indirect effect of crisis management on intention to travel to a destination through willingness to support a destination between countries with higher CFR and those with lower CFR.

2.5. Healthcare system, Willingness to support, Intention to travel to a destination

Healthcare systems in many countries face great pressure from the COVID-19 pandemic, with those of low- and middle-income countries with limited resources being extremely stressed (Arab-Zozani & Hassanipour, 2020). The COVID-19 pandemic therefore raises significant questions concerning the efficacy of national healthcare systems (Busemeyer, 2020). Healthcare capacity in each country, characterized by such factors as the number of hospital beds, physicians, and health expenditures per head of population, as well as health affordability, can play a vital role in combating the pandemic (Busemeyer, 2020). Significantly, healthcare factors influence confidence and levels of trust in healthcare systems (Gopichandran, Subramaniam, & Kalsingh, 2020). Nevertheless, trust in a healthcare system can be influenced by the level of trust of other parts of government (Gille, Smith, & Mays, 2020), as any distrust in government can be fueled by a crisis and transferred to the healthcare system (Christensen & Lægreid, 2020). For example, in a survey of the German public, Busemeyer (2020) found that trust in the healthcare system and political trust, especially in the truthfulness of the federal government's information policy, were closely linked. Although trust in the health system's ability to avoid unequal treatment of different population groups was high, people were more skeptical when it came to its strength and efficiency.

Importantly from a tourism perspective, trust in destination services can play a significant role in destination attractiveness and positively influence travel intention to the destination (Abubakar & Ilkan, 2016). Trust in healthcare systems can also directly affect travel intentions (Ye et al., 2008) and behaviors (Gille et al., 2020), particularly in cases where individuals

distrust can be fueled by exposure to news media (Gille et al., 2020), and online WOM (Abubakar & Ilkan, 2016). Numerous studies indicate that tourists are more likely to visit a destination they can trust and which they believe can offer high quality services (Gursoy, Joseph, & Christina, 2014), including in specialist areas such as health tourism (Ben et al., 2011). It can therefore be argued that trust in reliability and quality assurance of healthcare system can positively influence the willingness of individuals to travel to a destination (Han, 2013; Abubakar & Ilkan, 2016). Consequently, willingness to support and intention to travel to a destination may be significantly related to the perceived efficacy of healthcare system.

Therefore, we can suggest that beliefs in a healthcare system influences willingness to support a destination (desire) and travel intention (intention), with the effects of healthcare system on intention being mediated by desire (e.g., willingness to support a destination). Given the extant literature and the BDI model, the following hypothesis is proposed:

H6$_a$: There is a significant difference in the level of healthcare system between countries with higher CFR and those with lower CFR.

H6$_b$: There is a significant difference for the effect of healthcare system on willingness to support a destination between countries with higher CFR and those with lower CFR.

H6$_c$: There is a significant difference for the indirect effect of healthcare system on intention to travel to a destination through willingness to support a destination between countries with higher CFR and those with lower CFR.

2.6. Solidarity, willingness to support, and intention to travel to a destination

Solidarity is the "emotionally and normatively motivated readiness for mutual support, as in the slogan 'one for all and all for one" (Laitinen & Pessi, 2014, p. 1). During crises solidarity can also be constructed via the development of common social identities among those sharing

the same experience (Federico, de Zavala, & Baran, 2020). In the case of the COVID-19 pandemic, solidarity has been found to play a vital role in encouraging people to support health and social interventions (Arab-Zozani & Hassanipour, 2020; Federico et al., 2020), including assisting those in need or at risk, sharing resources and supporting frontline workers (Federico et al., 2020). However, in some countries, a lack of solidarity was observed with people protesting against restrictions, panic shopping, and abusing healthcare workers (Gebrekidan, 2020). Differences between developed and underdeveloped nations and countries in terms of access to adequate resources or efficient healthcare system, larger population size, and social inequality can also place some individuals in more vulnerable situations than others and undermine the values of solidarity (Arab-Zozani & Hassanipour, 2020).

Solidarity can influence tourists' perception and their "reactions to tourism in the destination" (Joo, Cho, & Woosnam, 2019, p. 231). Similarly, feeling of solidarity can be considered as a factor supporting the industry in a destination (Woosnam, 2011). Such feelings have been found to promote tourists' intention to connect with local people to support sustainable development at a destination to foster global solidarity (UN, 2011; UNWTO, 2020). Therefore, solidarity is regarded as a factor explaining the relationship between tourists and destinations (Woosnam, 2011; Woosnam, Shafer, Scott, & Timothy, 2015). Such a relationship can be investigated through the construct of emotional solidarity which plays an important role in the way tourists perceive safety at a destination (Woosnam et al., 2015) and subsequent travel decision making and intentions (Reisinger & Mavondo, 2006). Accordingly, we conclude that willingness to support and intention to travel to the destination will be affected by the level of solidarity felt by a consumer. Therefore, we suggest that solidarity as a belief influences willingness to support a destination (desire) and travel intention (intention), while the effects of solidarity on intention can be mediated by desire (e.g. willingness to support a

destination). Based on the above empirical findings and support from the BDI model we posit the following hypotheses:

$H7_a$: There is a significant difference in the level of solidarity between countries with higher CFR and those with lower CFR.

$H7_b$: There is a significant difference for the effect of solidarity on willingness to support a destination between countries with higher CFR and those with lower CFR.

$H7_c$: There is a significant difference for the indirect effect of solidarity on intention to travel to a destination through willingness to support a destination between countries with higher CFR and those with lower CFR.

Figure 1 shows the conceptual framework of this study.

[Figure 1 about here]

3. Research methodology

3.1 Data collection

This study applied a quantitative method using questionnaire to collect data. The measurement instrument was designed based on prior studies to ensure its consistency, reliability, and validity (Creswell & Creswell, 2017) and were adapted to the context of this study on the COVID-19 pandemic. The items to measure involved constructs in the conceptual framework were adapted from previous studies; trust (Nunkoo, Ramkissoon, & Gursoy, 2012; Fancourt et al., 2020); crisis management (Li et al., 2018; J. Li et al., 2020), healthcare system (Abubakar & Ilkan, 2016; Na et al., 2016), solidarity (Joo et al., 2019; Joo et al., 2020), willingness to support a destination (Chen & Tsai, 2007; Prayag et al., 2017), and travel intention (Zenker et al., 2019) (Appendix 1). The respondents were asked to rate the items using a 7-point Likert

scale, anchored 1 (strongly disagree) to 7 (strongly agree). The questionnaire was in English and was pre-tested before the study began to ensure its comprehensibility, acceptability and accuracy. The data were collected from two groups of countries, those with higher rate of COVID-19 case fatality (China, Italy, Iran, USA, UK) and those with lower rate of COVID-19 case fatality (South Korea, Germany, New Zealand).

To select the countries for each category the ratio between number of deaths and number of confirmed cases (known as Case Fatality Rate [CFR]) has been calculated and considered. This ratio is the main criterion to select countries. In addition to the CFR, we also considered absolute number of cases and deaths reported in international and national media (e.g., World Health Organisation, European Centre for Disease Prevention and Control, Johns Hopkins Coronavirus Resource Centre). Absolute number of cases were used in the categorisation of countries given that these were the headline numbers being reported in international and national media (Khafaie & Rahim, 2020). We considered the countries with rate of case fatality higher than the world average rate (2.29) as countries with higher rate of case fatality, whereas the countries with the rate of case fatality lower than the world average rate have been categorized in countries with lower rate of case fatality except for the US, whose both absolute number of cases and deaths are high and has been categorized under countries with high rate of case fatality. Table 1 shows the CFR across selected countries.

[Table 1 about here]

A screening and selection question was asked at the beginning of the questionnaire to identify the country that respondent most followed the news from media about that country to make sure that COVID-19 perceptions have been shaped mostly from media for that country. The respondents only could select one country and transferred to the question about selected country.

This study used an online questionnaire distributed in social media (e.g., Facebook, LinkedIn, Twitter) and collected data from May to August of 2020 from two different groups of countries with higher and lower rate of COVID-19 related CFR. A total number of 522 usable questionnaires were completed from the respondents, who followed the news about those countries in media. The respondents who answered the questionnaire, were following the COVID-19 news for eight countries including 115 (China); 76 (Italy); 21 (Iran); 140 (USA); and 53 (UK) for first group of countries with higher CFR and 24 (South Korea); 49 (Germany); and 44 (New Zealand) for second group of countries with lower CFR.

Among the 522 respondents, 260 (49.8%) were male, 254 (48.7 %) were female, and seven (1.5%) did not reveal their gender. The majority of the respondents 360 (69%) belong to two age groups; 25-34 and 35-44 groups, whereas 124 (24%) were older than 45, and 36 (7%) younger than 25 years old. The profile of respondents showed that the majority 466 (89.5%) had college and university level education. For 288 respondents (55.2%) social media was the main source of information on COVID-19.

3.2 Analytical technique

This study employs partial least squares – structural equation modeling (PLS-SEM) and multi-group analysis (MGA) to assess the measurement model for each group, and also compare the constructs and relationships between two groups. There are two main reasons for application of PLS-SEM; i) the aim of study is prediction of willingness to support a destination, and future travel intention, and PLS-SEM as a prediction-oriented approach is suitable for this study, and ii) MGA is a non-parametric analysis, so the PLS-SEM as a non-parametric approach in more relevant to this study (Hair et al. 2017; Henseler et al. 2016). To apply PLS-SEM and MGA, this study employs SmartPLS 3.0 software (Ringle et al., 2015). Using PLS-SEM, the measurement is assessed for the data from two groups including the countries with low and

high levels of mortality. In addition, the MGA is performed using two nonparametric approaches including Henseler's MGA (Henseler et al., 2009) and the permutation test (Chin & Dibbern, 2010). Prior to perform MGA, the measurement invariance should be tested using the measurement invariance for composite (MICOM) approach (Henseler et al., 2016; Rasoolimanesh et al., 2017). To run MICOM for measurement invariance testing, the configurational invariance, compositional invariance, and equality of mean and variance should be established for full measurement invariance (Md Noor et al., 2019; Gannon et al., 2020). However, only partial measurement invariance including configurational and compositional invariance is the requirement of performing MGA (Rasoolimanesh et al., 2019). Moreover, a series of t-test analyses using SPSS software have been applied to compare the constructs between two groups of respondents.

This study checked the Common Method Bias (CMB) using two approached including testing the full collinearity variance inflation factor (VIF) (Kock, 2015), and the correlation matrix procedure (Bagozzi, et al., 1991). To check the CMB, when the study applies the PLS-SEM), recent literature recommended the application of full collinearity VIF and the threshold of 5 (Kock & Lynn, 2012). In the current study the full collinearity VIF of all constructs were lower than indicating the model free of CMB. In addition, using the correlation matrix procedure, the results showed the correlation between all constructs lower than 0.9, indicating CMB is not an issue in the current study.

To check the adequacy of data for analysis, we employed G*Power software to calculate minimum sample size (Faul et al., 2009). The results showed a minimum sample of 108 to get a power of 0.90, and so our sample for each group is more than minimum sample size and acceptable. In addition, Reinartz et al. (2009), recommended a sample of 100 as a requirement to perform PLS-SEM to achieve the power of 0.8. Therefore, the data collected for two groups were sufficient to run analysis.

4. Results and Findings

4.1 Assessment of measurement model and MICOM

The measurement models of this study including six reflective constructs have been assessed for two groups separately. The outer loadings of reflective constructs (e.g. trust (TR), crisis management (CM), healthcare system (HCS), solidarity (SOL), willingness to support a destination (WSD), and travel intension (TI)), composite reliability (CR), and rho_A should be greater than 0.7 (i.e. the loading between 0.5 and 0.7 is acceptable if other criteria meet the thresholds) to establish reliability and internal consistency (Hair et al., 2019). In addition, to establish convergent validity the average variance extracted (AVE), needs to be greater than 0.5 (Ali et al. 2018). The results of assessment of measurement models presented in Table 2 show acceptable reliability, internal consistency and convergent validity for all constructs involved in the framework of this study and for data from two groups. The loadings, CR, rho_A, and AVE of all constructs for two groups (i.e. the data from countries with higher CFR and those with lower CFR) are greater than thresholds to establish reliability and convergent validity. Moreover, in order to establish discriminant validity, we applied the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio (Henseler et al., 2015). To establish discriminant validity based on the Fornell-Larcker criterion, the square root of AVE should be greater than the highest correlation of construct with other constructs (Ali et al., 2018; Hair et al., 2017), whereas, using bootstrapping and confidence interval, the value of HTMT should be significantly different from 1 or the upper-level value of confidence interval should be lower than 1 (Franke & Sarstedt, 2019). The results of discriminant validity using these two conservative approaches in Table 3 and Table 4 show establishing the discriminant validity for both groups of data.

[Table 2 about here]

[Table 3 about here]

[Table 4 about here]

Prior to assess structural model and perform MGA to compare the path coefficients between two groups the measurement invariance should be tested using MICOM approach. The results of MICOM presented in Table 5 show partial measurement invariance for data from two groups by establishment of configural and compositional invariance. Therefore, the MGA can be performed to test hypotheses. However, the results of MICOM could not support the equality of mean and variance values for the constructs, hence the data for two groups cannot be combined, and results of measurement model and structural model assessment should be reported for each group. Table 5 shows the results of MICOM for this study.

[Table 5 about here]

4.2 Assessment of structural model and hypothesis testing

In first step of assessment of structural model, because of prediction nature of this study, the prediction power using both in-sample and out of sample approaches were assessed. The values of R^2 and Q^2 for endogenous constructs (e.g. willingness to support a destination, and travel intention) were checked and assessed for two groups as the in-sample predictive power approach (Hair et al., 2019). The results showed the value of 0.471 and 0.564 for the R^2 of willingness to a support a designation and travel intention to the countries with higher COVID-19 related CFR respectively, whereas the values of R^2 for willingness to support a destination, and travel intention for the countries with lower COVID-19 related CFR were 0.461 and 0.309 respectively. The results showed acceptable predictive power based on the value of R^2 for the data from both groups (Hair et al., 2017). In addition, the results showed the values of 0.380 and 0.464 for the Q^2 of willingness to support a designation and travel intention for the countries with higher CFR and 0.306 and 0.213 for the countries with lower CFR respectively,

indicating the high predictive power using the Q^2 criterion and in-sample approach for the data from both groups (Hair et al., 2019). In addition to in-sample approach, the $PLS_{predict}$ as an out of sample method was applied to assess the predictive power of model for the data from two groups (Shmueli et al., 2016). To apply $PLS_{predict}$ for assessment of predictive power of two endogenous constructs (e.g. willingness to support a designation and travel intention) in the model, the value of $Q^2_{predict}$ for the items of each construct should be greater than zero, and the root mean squared error (RMSE) calculated using PLS-SEM, should be lower compared to the RMSE calculated using linear model (LM) (Shmueli et al., 2019). Table 6 shows the results for both groups indicating the high predictive power of model using out of sample $PLS_{predict}$ approach based on the data from both groups. Therefore, using both in-sample and out of sample approaches, the results showed high predictive power of model to willingness to support a designation and travel intention for post COVID-19 period.

[Table 6 about here]

Table 7 and Table 8 show the results of hypothesis testing and comparison of concepts and effects between two groups. The results of Table 7 show the significant differences between the perceptions of respondents shaped by media regarding the trust, crisis management, healthcare system, and solidarity in countries with higher CFR and the countries with lower CFR. The results demonstrated significantly higher and positive perceptions towards trust, crisis management, healthcare system, and solidarity of countries with lower CFR supporting $H4_a$, $H5_a$, $H6_a$, and $H7_a$. In addition, the results showed the highest willingness to support and travel intention for post COVID-19 era for the countries with lower CFR supporting H1 and H2. Therefore, all hypotheses for comparison of perceptions towards trust, crisis management, healthcare system, and solidarity, as well as willingness to support and travel intention between two groups of countries are supported.

[Table 7 about here]

Table 8 shows the results of MGA for comparing the path coefficients between two groups. The results show positive and significant effect of willingness to support a destination on travel intention for two groups, which this effect is significantly higher for the countries with higher COVID-19 related CFR, supporting H3. The results of MGA could not support significant differences for the effect trust on willingness to support a destination and indirect effect of trust on travel intention through willingness to support ($H4_b$ & $H4_c$). The results showed the significant effect of trust on willingness to support a destination and indirect effect of trust on travel intention through willingness to support for the countries with higher CFR and slightly higher compared to the countries with lower CFR, however, these differences were not high. For the effects of crisis management and healthcare system on willingness to support a destination and travel intention, the results did show any significant effects for both groups of countries, and so no significant differences for these effects between countries. Therefore, the results could not support $H5_b$, $H5_c$, $H6_b$, and $H6_c$. Finally, the results demonstrated the positive and strong effects of solidarity on willingness to support a destination and indirect effects on travel intention for both groups of countries, with slightly higher effects for countries with higher COVID-19 related CFR. However, the differences of effects of solidarity on willingness to support and travel intention are not significant between two groups of countries. Therefore, the results could not support $H7_b$ and $H7_c$.

[Table 8 about here]

5. Discussion

This study aims to compare the perceptions of prospective tourists shaped by media towards trust, crisis management, healthcare system, and solidarity during the COVID-19 outbreak in

countries with higher and lower COVID-19 related CFR. In addition, this study compares the effects of perceptions towards trust, crisis management, healthcare system, and solidarity on willingness to support and travel intention between the two groups of countries. The results revealed the higher and more positive perceptions of prospective tourists towards trust, crisis management, healthcare system, and solidarity, as well as willingness to support and travel intention to the destinations with lower CFR compared to the destination with higher CFR. The respondents showed that they have more willingness to support and also travel to the destination with low CFR. This largely finds support in prior studies which highlight safety and security as key criteria in global travel decisions (e.g. Fuchs & Reichel, 2006) as well as more recent studies on tourists' perceived risk associated with the COVID-19 pandemic (e.g. Sánchez-Cañizares et al., 2020). This does indicate that the destination-specific factors of future travel decisions, such as assurances of health safety are of paramount significance post pandemic. Moreover, respondents showed more positive perceptions towards the governmental response and handling of COVID-19 outbreak, trust to the government, and solidarity between people in the destination with lower COVID-19 related CFR. This result complies with past research (e.g. Kim, Chung, & Lee, 2011; Abubakar et al., 2016) which noted a direct connection between individuals' perceived trust and their travel intention and behaviour.

Although the differences between the two groups of countries for the effects of perceptions on willingness to support and travel intention are not significant, the results showed slightly stronger effects of trust and solidarity on willingness to support a destination and travel intention for the destinations with higher COVID-19 related CFR. This may reflect observation that high cases and death tolls attributed to COVID-19 reflects the trustworthiness and transparency of affected countries and their strong testing capacity (Devine et al., 2020).

These findings indicated the importance of trust and solidarity, with stronger effect of solidarity to predict future willingness to support and travel intention for the countries with

higher CFR. These findings can be confirmed by the results of predictive power assessment, and showing the higher values of R^2, Q^2, and predictive power using $PLS_{predict}$ for the group of countries with higher COVID-19 related CFR. This finding is in line with the discussion on the significant role of solidarity in each destination on tourists' perception towards the destination (Joo et al., 2019). The effect of solidarity on tourists' perception can however be explained from two different perspectives. First, this can be used to examine the way tourists perceive safety at a destination (Woosnam et al., 2015) which can affect their decision making and travel intention (Reisinger & Mavondo, 2006). The second perspective is supported by the argument on the positive impacts of solidarity on tourists' willingness to connect with local people and support for the destination (UN, 2011; UNWTO, 2020). Examining the impacts of solidarity on tourists' perception, we can argue that even if not willing to travel to a destination, tourists may still wish to support residents and the destination.

The results could not however support the effects of crisis management and healthcare system on willingness to support a destination and future travel intention for both groups of countries, indicating the less importance of these factors to predict willingness to support and intention to travel to a destination. This finding contradicts with the discussion in the literature on the significant role of both crisis management and healthcare system on individuals' perception and travel intention. For example, despite literature indicating individuals low trust in countries with limited resources and not efficient healthcare system particularly at the time of crises (Gille et al., 2020), playing a significant role in destination attractiveness and travel intention (Abubakar & Ilkan, 2016), the findings of this study did not confirm presence of such phenomenon in either groups of the countries. While both this study and the wider literature support the significant role of trust on tourists' decision making and travel intention (Gursoy, Joseph, & Christina, 2014), here we can argue that neither crisis management nor healthcare system played a role in constructing individuals trust in a destination. However, the COVID-

19 pandemic and its associated impacts are not over yet. As the COVID-19 pandemic situation in different countries is still unfolding, individuals may gradually build their trust on the link between countries success in managing the crisis to government approaches, crises management strategies and their healthcare efficiency.

6. Conclusion

6.1. Theoretical contributions and practical implications

This study aimed to examine how perceptions shaped by media towards the two groups of countries with higher and lower COVID-19 related CFR has affected the potential tourists' perception and induced desire to travel post-pandemic. This is particularly important as the media's portrayal of the competency of the governmental response to the COVID-19 pandemic has resulted in diverse perceived images among individuals globally. Such perceptions can play a significant role in the future decision-making processes of tourists and their post pandemic behaviors in visiting a destination. The latter is of paramount significance as Beirman (2020) notes public perception management through communication and information channels plays a key role in any tourism recovery efforts post crisis.

This study has several theoretical contributions. *First*, it develops an integrated structural framework to address the questions on whether and how the public perceptions shaped by media towards trust, crisis management, healthcare system, and solidarity influence willingness to support and intention to travel to a destination post pandemic. Such framework further provided the opportunity to examine individuals' perception and their travel intention between the two groups of countries with higher or lower COVID-19 related CFR. *Second*, this study extends the present growing literature on COVID-19 by investigating the media attributed COVID-19 outbreak policy and governmental response by the public. *Third*, this research adds

to the few studies that outlined tourist perceptions and behaviors during the time of crises in general and during COVID-19 period in particular.

The results of this study provide important managerial implications particularly for DMOs. *First,* as attested by this research, perception from media in the times of crisis largely affects individuals' perceived image of a destination and their awareness for future travelling. Image restoration is of a key role in recovery strategies once the virus is restrained. Post crisis communication, informed by tourists' responses and reactions to the crisis, can be used for image restoration (Coombs, 2007, 2017). Assessing tourist's perceptions and their intentions should be of key focus for the destination managers to anticipate the level of reputation threat of a crisis (Coombs, 2007). The results of this study therefore provide such evidence for the DMOs to design their response strategies and guidelines for post crisis communication. In addition, the results showed that trust and solidarity have direct effects on individual's future travel intention in countries with high COVID-19 related CFR. Those countries should focus on building trust in tourists and reinforcing their image. In this regard, marketing initiatives, advertising campaigns, media relations and crisis communication techniques are suggested for the DMOs. Such strategies could improve the destination reputation and enhance individuals' perceived trust in a destination.

Crisis communication on social media plays a significant role in image restoration and reputation repair during the COVID-19 pandemic (Yu et al., 2020). However, based on the communication objectives different strategies must be followed. For example, if the communication objective involves public health and safety, every channel available must be used while reputation repair objective requires focusing on the channels that are best to reach target audiences (Coombs, 2017). Using digital platforms and channels and media agencies, should be the focus of communications which could ensure the messages communicated to the tourism market remain factual and non-sensationalised. Doing this could improve the public

communication and provide assurances for tourists in their future travel to such destinations and overall improve the destination's brand image. Furthermore, knowledge sharing and collaboration within the different stakeholders in the tourism industry is of paramount significance. Such collaborative efforts for rebuilding the destination can effectively aid the recovery process (Ritchie et al., 2004; Mair et al., 2016).

6.2. Limitations and directions for future research

The findings of this online cross-sectional study have to be interpreted with some limitations, which indeed provide grounds for future research. *First*, despite our efforts to distribute the survey through different channels (including social media platforms) which led to an acceptable response rate, the use of an online survey for this study may have resulted in a selection bias for respondents as most online surveys do (Hwang & Fesenmaier, 2004). Future research is suggested to expand the scope of investigation by alternative data collection methods such as qualitative and longitudinal research methods to corroborate the present study results.

Second, this cross-sectional study accepts the causality and temporality with respect to perception and the sociodemographic factors. We collected the data between the first and second waves of COVID-19 outbreak which may reflect the temporality of the responses and the rapid changing nature of COVID-19 infection cases and mortality rate at that time which may have affected the responses of respondents. Longitudinal methods are suggested for future research to examine the changing perception of countries with respect to the COVID-19 related CFR. *Third,* despite the relatively long period of data collection, over four months, from May to August 2020 given the rapid global spread of COVID-19, the selection and categorization of countries into two groups of higher and lower COVID-19 related CFR may also reflect the temporality aspect of this study.

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Figure 1. Conceptual framework

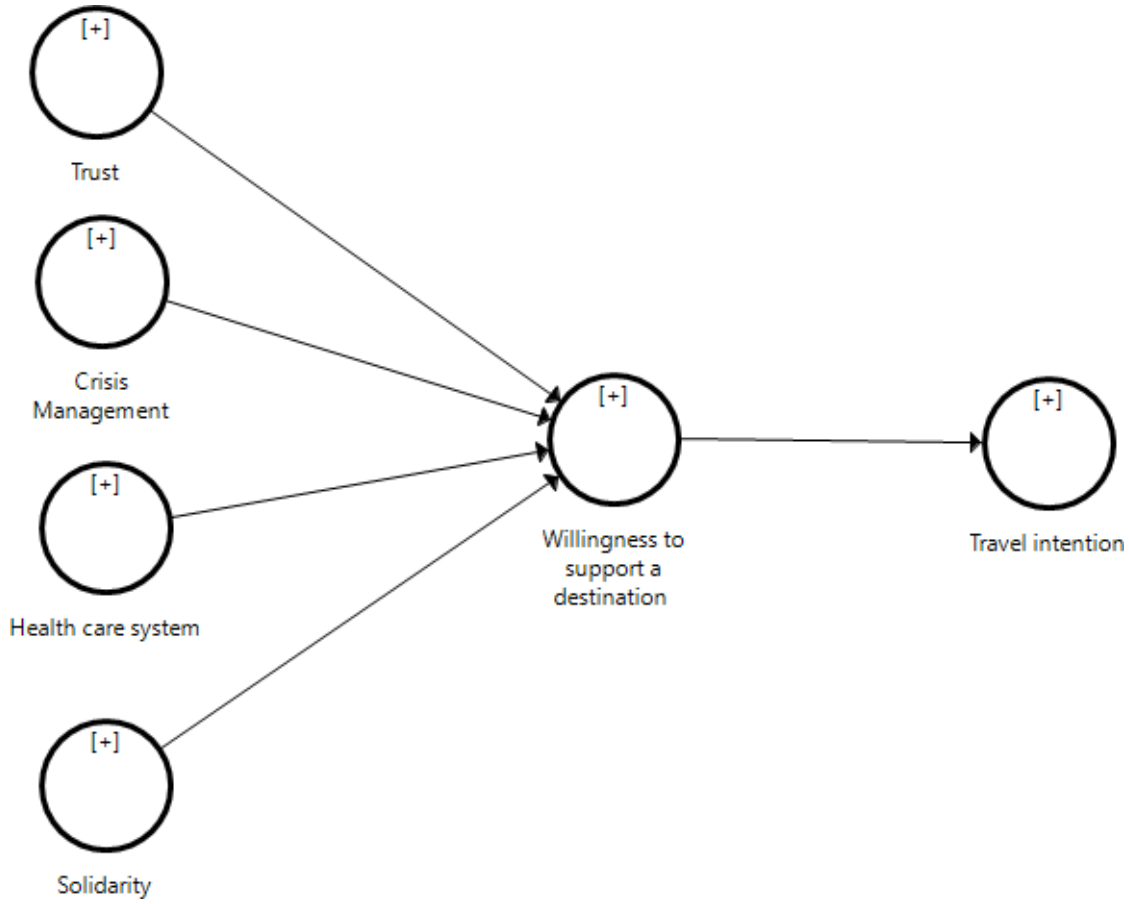

Table 1: The comparison of case fatality rate (CFR) between different countries from March to September 2020

Country	**Total absolute cases**	**Total absolute deaths**	**Case Fatality Rate** (ratio between deaths and cases)	**Category**
World	**67,484,167**	**1,543,431**	**2.29**	
United States	15,159,529	288,906	1.905	High rate of case fatality
Unites Kingdom	1,723,242	61,245	3.55	High rate of case fatality
Italy	1,728,878	60,078	3.47	High rate of case fatality
China	86,634	4,634	5.35	High rate of case fatality
Iran	1,051,374	50,594	4.81	High rate of case fatality
New Zealand	2,079	25	1.20	Lowe rate of case fatality
Germany	1,185,093	19,166	1.62	Lowe rate of case fatality
South Korea	38,161	549	1.44	Lowe rate of case fatality

Sources: Compiled by authors from World Health Organisation, European Centre for Disease Prevention and Control, Johns Hopkins Coronavirus Resource Centre

Table 2. Results of assessment of measurement model

Construct	Items	Outer Loading		CR		rho_A		AVE	
		High rate	Low rate	High rate	Low rate	High rate	Low rate	High rate	Low rate
Trust (TR)				**0.959**	**0.935**	**0.943**	**0.913**	**0.854**	**0.782**
	TR1	0.911	0.895						
	TR2	0.936	0.848						
	TR3	0.943	0.941						
	TR4	0.906	0.852						
Crisis Management (CM)				**0.953**	**0.931**	**0.934**	**0.896**	**0.872**	**0.818**
	CM1	0.931	0.912						
	CM2	0.943	0.913						
	CM3	0.928	0.887						
Health Care System (HCS)				**0.957**	**0.948**	**0.934**	**0.928**	**0.881**	**0.859**
	HCS1	0.930	0.914						
	HSC2	0.957	0.912						
	HSC3	0.929	0.954						
Solidarity (SOL)				**0.939**	**0.900**	**0.920**	**0.871**	**0.756**	**0.644**
	SOL1	0.874	0.743						
	SOL2	0.898	0.829						
	SOL3	0.888	0.858						
	SOL4	0.917	0.794						
	SOL5	0.763	0.783						
Willingness to Support a Destination (WSD)				**0.946**	**0.906**	**0.924**	**0.875**	**0.815**	**0.706**
	WSD1	0.854	0.831						
	WSD2	0.901	0.873						
	WDS3	0.929	0.805						
	WSD4	0.927	0.851						
Travel Intention (TI)				**0.937**	**0.907**	**0.900**	**0.869**	**0.832**	**0.765**
	TI1	0.888	0.846						
	TI2	0.905	0.879						
	TI3	0.942	0.898						

Note: *See full name of items in Appendix 1*

Table 3. Discriminant validity using Fornell-Larcker criterion

	TR	CM	HCS	SOL	WSD	TI	TR	CM	HCS	SOL	WSD	TI
	High rate countries						Low rate countries					
TR	0.924						0.885					
CM	0.637	0.934					0.801	0.904				
HCS	0.580	0.814	0.939				0.767	0.835	0.927			
SOL	0.694	0.786	0.761	0.870			0.794	0.758	0.709	0.802		
WSD	0.596	0.527	0.521	0.658	0.903		0.605	0.547	0.564	0.658	0.840	
TI	0.410	0.426	0.409	0.502	0.751	0.912	0.365	0.455	0.548	0.429	0.556	0.875

Note: *TR= Trust; CM= Crisis Management; HCS= Health care system; SOL= Solidarity; WSD= Willingness to support a destination; TI= Travel intention*

Table 4. Discriminant validity using HTMT inference statistics (Confidence Interval)

	TR	CM	HCS	SOL	WSD	TI	TR	CM	HCS	SOL	WSD	TI
	High rate countries						Low rate countries					
TR												
CM	[0.619, 0.734]						[0.805, 0.945]					
HCS	[0.552, 0.681]	[0.835. 0.907]					[0.726, 0.912]	[0.847, 0.971]				
SOL	[0.696, 0.791]	[0.811, 0.885]	[0.777, 0.865]				[0.817, 0.970]	[0.769, 0.933]	[0.658, 0.890]			
WSD	[0.577, 0.697]	[0.496, 0.623]	[0.490, 0.623]	[0.663, 0.761]			[0.524, 0.812]	[0.410, 0.767]	[0.423, 0.767]	[0.615, 0.864]		
TI	[0.366, 0.521]	[0.379, 0.542]	[0.363, 0.520]	0.475, 0.624]	[0.778. 0.861]		[0.175, 0.619]	[0.273, 0.703]	[0.726, 0.912]	[0.273, 0.670]	[0.433, 0.755]	

Note: *TR= Trust; CM= Crisis Management; HCS= Health care system; SOL= Solidarity; WSD= Willingness to support a destination; TI= Travel intention*

Table 5. Results of measurement invariance testing

Constructs	Configural invariance (Same algorithms for both groups)	Compositional invariance (Correlation =1)		Partial measurement invariance established	*Equal mean assessment*			*Equal variance assessment*			Full *measurement invariance established*
		C=1	Confidence Interval (CIs)		Differences	Confidence Interval (CIs)	Equal	Differences	Confidence Interval (CIs)	Equal	
TR	Yes	1.000	[1.000, 1.000]	Yes	-0.838	[-0.198, 0.210]	No	1.259	[-0.229, 0.282]	No	No
CM	Yes	0.999	[0.999, 1.000]	Yes	-0.988	[-0.205, 0.204]	No	1.288	[-.0197, 0.231]	No	No
HCS	Yes	1.000	[1.000, 1.000]	Yes	-0.929	[-0.203, 0.206]	No	1.212	[-0.216, 0.253]	No	No
SOL	Yes	1.000	[1.000, 1.000]	Yes	-0.803	[-0.197, 0.206]	No	1.355	[-0.229, 0.260]	No	No
WSD	Yes	0.999	[0.999, 1.000]	Yes	-0.652	[-0.204, 0.204]	No	0.952	[-0.228, 0.281]	No	No
TI	Yes	0.999	[0.999, 1.000]	Yes	-0.721	[-0.197, 0.208]	No	0.961	[-0.204, 0.237]	No	No

Note: *TR= Trust; CM= Crisis Management; HCS= Health care system; SOL= Solidarity; WSD= Willingness to support a destination; TI= Travel intention*

Table 6. Results of predictive power using $PLS_{predict}$

Items	High rate countries			Low rate countries		
	$Q^2_{predict}$	RMSE		$Q^2_{predict}$	RMSE	
		PLS-SEM	Linear Model		PLS-SEM	Linear Model
WSD1	0.314	1.692	1.704	0.265	0.977	1.081
WSD2	0.423	1.415	1.427	0.290	1.152	1.435
WSD3	0.378	1.504	1.504	0.194	1.342	1.477
WSD4	0.384	1.484	1.489	0.278	1.114	1.342
TI1	0.214	1.808	1.822	0.187	0.955	0.922
TI2	0.192	1.934	1.940	0.072	1.550	1.641
TI3	0.206	1.896	1.914	0.126	1.342	1.431

Table 7. Results of Hypothesis Testing (t-test results for constructs)

Hypothesis	Constructs	Mean Value		Mean value differences	t-value	$CI_{0.95}$	Supported
		High rate	Low rate				
H1	TI	4.267	5.627	-1.360	-6.471	[-1.773. -0.947]	Yes
H2	WSD	4.338	5.443	-1.105	-5.821	[-1.478, -0.732]	Yes
H4a	TR	4.333	5.753	-1.419	-10.535	[-1.684, -1.154]	Yes
H5a	CM	3.921	5.717	-1.795	-9.267	[-2.073, -1.519]	Yes
H6a	HCS	4.269	5.889	-1.620	-8.649	[-1.894, -1.346]	Yes
H7a	SOL	4.392	5.630	-1.238	-10.367	[-1.473, -1.003]	Yes

Note: *TR= Trust; CM= Crisis Management; HCS= Health care system; SOL= Solidarity; WSD= Willingness to support a destination; TI= Travel intention*

Table 8. Results of Hypothesis Testing (MGA results for relationships)

Hypothesis	Relationships	Path Coefficient		Confidence Interval (95%) Bias Corrected		Path coefficient Difference	*P*-value Difference (one-tailed)		Supported
		High rate	Low rate	High rate	Low rate		Henseler's MGA	Permutation test	
H3	WSD → TI	**0.751**	**0.556**	**[0.707, 0.788]**	**[0.404, 0.663]**	**0.195**	**0.004**	0.002	Yes
$H4_b$	TR → WSD	**0.276**	0.174	**[0.178, 0.370]**	[-0.118, 0.468]	0.102	0.296	0.233	No
$H4_c$	TR → WSD → TI	**0.207**	0.096	**[0.134, 0.282]**	[-0.065, 0.271]	0.111	0.153	0.150	No
$H5_b$	CM → WSD	-0.068	-0.096	[-0.190, 0.050]	[-0.407, 0.205]	0.028	0.444	0.452	No
$H5_c$	CM → WSD → TI	-0.051	-0.053	[-0.143, 0.038]	[-0.244, 0.112]	0.002	0.499	0.510	No
$H6_b$	HCS → WSD	0.048	0.181	[-0.059, 0.162]	[-0.046, 0.431]	-0.132	0.198	0.208	No
$H6_c$	HCS → WSD → TI	0.036	0.100	[-0.045, 0.121]	[-0.024, 0.269]	-0.064	0.267	0.294	No
$H7_b$	SOL → WSD	**0.483**	**0.465**	**[0.373, 0.591]**	**[0.216, 0.695]**	0.018	0.441	0.442	No
$H7_c$	SOL → WSD → TI	**0.363**	**0.259**	**[0.277, 0.448]**	**[0.113, 0.408]**	0.104	0.168	0.150	No
R^2		Countries with high rate		Countries with low rate		R^2 Difference	Henseler's MGA	Permutation test	
Willingness to support a destination		0.471		0.461		0.011	0.464	0.355	No
Travel Intention		0.564		0.309		0.255	0.004	0.003	Yes

Note: *TR= Trust; CM= Crisis Management; HCS= Health care system; SOL= Solidarity; WSD= Willingness to support a destination; TI= Travel intention*

Appendix 1. List of Adapted items

Trust	
TR1	I trust the information and communication provided by the government of destination A about the infection and mortality rate of COVID-19
TR2	I have admired the openness and transparency of the government of destination A since the beginning of the COVID-19 outbreak
TR3	I would characterize the government of destination A as honest in their response to COVID-19
TR4	My level of trust in the information and communication provided by the government of destination A has increased since the start of the COVID-19 outbreak.
Crisis Management	
CM1	I admire the timely and early diagnosis and treatment of Covid-19 by the authorities of destination A
CM2	I admire the forceful and rapid response to COVID-19 in destination A
CM3	I admire the effective management of the supply chain risk and disruption (shortage of food and medicine) in destination A
Health Care System	
HCS1	I believe the healthcare system of destination A is reliable and robust
HCS2	I admire the timely and fast tracking of those exposed to COVID-19 in destination A
HCS3	I admire the high-capacity for COVID-19 testing in country A
Solidarity	
SOL1	I believe the government of destination A cared about its people during COVID-19 crisis
SOL2	The government of destination A did the best to relieve and decrease the emotional and mental impacts of COVID-19 on affected people
SOL3	In destination A, all groups of people help and care about each other during COVID-19 crisis
SOL4	The government and people of destination A were close and together to overcome the COVID-19 crisis
SOL5	People help each other in different ways financially and non-financially to relieve and decrease the emotional and mental impacts on affected people
Willingness to Support a Destination	
WSD1	I would encourage my friends and relatives to travel to destination A after COVID-19 crisis
WSD2	I say good things about destination A on social media
WSD3	I would promote this destination to help tourism recovery
WSD4	If the destination agency / someone from the destination asked me to promote the destination, I would do all my efforts to do promote the destination.
Travel Intention	
TI1	If given the opportunity, I am willing to travel to destination A after COVID-19
TI2	I am planning to travel to destination A after COVID-19 in the near future
TI3	The likelihood of my travel to destination A is high