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The impact of the COVID-19 pandemic on tourists’ air travel intentions: The role of perceived health risk and trust in the airline

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ABSTRACT

Travel restrictions as well as travellers’ increased risk perceptions have changed travel patterns around the globe during the COVID-19 pandemic. As such, the aviation industry has been particularly affected by the changing environment. Several airlines have reacted to travellers’ rising concerns about becoming infected with the COVID-19 disease by introducing safety measures to guarantee a safe journey. Although research has noted the relevance of good communication during crises, the impact of communicating safety measures by rational (safety) advertising appeals on air travel intention has not been explored thus far. The current study investigates consumers’ reactions to two different types of advertising appeals during the COVID-19 pandemic and their effect on air travel intentions and airline recommendation intentions. An online experiment reveals that travellers react more positively to safety as compared to emotional advertising appeals during the COVID-19 pandemic. Furthermore, the results confirm the hypothesized mediating effect of perceived health risk and trust in the airline on the impact of safety appeals in terms of air travel intention and airline recommendation. The results of this study uncover the underlying mechanisms that have driven consumers’ air travel intentions during the COVID-19 pandemic and offer various theoretical and managerial implications.

1. Introduction

The COVID-19 pandemic has created a worldwide loss in the tourism industry, amounting to $935 billion in the first 10 months of 2020 alone (Madden, 2021). As a specific sector of the tourism industry, the aviation industry has been hit particularly hard by the global crisis. The international civic airport organization reports a decrease of 2.699 billion passengers, causing a total airline revenue loss of $371 billion (International Civil Aviation Organization, 2021). Since the COVID-19 outbreak, the drastic decline in departing flights has almost reached 52% (Bielecki et al., 2020). Consequently, some airlines have already been forced to discontinue their business activities either partly or entirely as a result of bankruptcy files, closure of subsidiaries, and other actions resulting from failure to survive the crisis (Albers and Runsdhagen, 2020).

In addition to the introduction of governmental measures, such as travel restrictions or mandatory quarantine (Poonam, 2020), tourists’ increasing concerns about their health limit air travel (Villacé-Molineró et al., 2021). Indeed, risk perceptions have changed since the beginning of the COVID-19 pandemic (Villacé-Molineró et al., 2021). Perceived risk plays an important role in tourists’ travel decisions (Choe and Kim, 2021), and the construct of perceived risk has received considerable research attention since the beginning of the COVID-19 pandemic (Neuburger and Egger, 2020; Zhan et al., 2020).

At the same time, research notes that less is known about consumers’ risk perceptions during the COVID-19 pandemic (Dryhurst et al., 2020; Zhan et al., 2020) and how these perceptions influence consumer behaviour. Hence, there is an ongoing call to explore travel intentions during a crisis (Xie et al., 2021) as well as the impact of the COVID-19 pandemic on risk perceptions (Hall and Cooper, 2021; Villacé-Molineró et al., 2021). While some studies have already followed this call and explore tourists’ health risk perceptions in the context of destination choice (e.g., Choe and Kim, 2021; Neuburger and Egger, 2020), existing research lacks a profound exploration of tourists’ risk perceptions while in transit (i.e., risk perceptions during a flight).

Furthermore, while prior research acknowledges demographic factors as determinants for tourists’ risk perceptions (e.g., Lepp and Gibson, 2003; Reisinger and Mavondo, 2005; Zhan et al., 2020), little research has devoted attention to the effects of external sources on risk perceptions and travel behaviour in the context of the COVID-19 pandemic.

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The study of Xie et al. (2021) represents a valuable exception in that the authors demonstrate that risk-amplifying frames reduce travel intentions. In this context, research claims that the “impact of crisis communication and social media on perceived risk has been ignored” (Sigala, 2020 p. 316). This is interesting because information search is one strategy to cope with perceived risk (Maser and Weiermair, 1998), and social media and video sharing websites likely shape tourists’ behaviour (Cohen et al., 2014) as well as tourists’ risk perceptions (Garg, 2015). Moreover, a recent study emphasizes the relevance of communication as a measure to reactivate the tourism industry (Vilàcè-Molineró et al., 2021).

In this context, advertising a trip’s safety might represent an important source of information that could potentially impact travellers’ risk perceptions (Sánchez-Canizares et al., 2021). Airlines around the world have noticed the power of communication during the COVID-19 pandemic, and they now inform tourists about their safety measures on their websites as well as in advertisements. This kind of appeal (i.e., advertisements communicating safety measures) represents rational advertising appeals, which can be differentiated from emotional appeals. Indeed, prior research acknowledges the relevance of informing tourists about safety measures to ensure that consumers expect a safe journey (Neuburger and Egger, 2020).

Nevertheless, no study has yet explored how health risk perceptions can be reduced by informing passengers about applied safety appeals during a flight through advertising measures. Likewise, different kinds of advertising appeals have not been previously associated with trust in the airline, although safety measures have been argued to increase trust in the airline industry (Hassan and Salem, 2021). Against this background, the current research seeks to contribute to the extant literature in at least three ways. Firstly, we seek to explore the difference between rational and emotional appeals on perceived risk and trust in times of the COVID-19 pandemic. Secondly, we intend to explore the underlying mechanism that prompts higher air travel intentions and higher airline recommendation intentions for safety as compared to emotional appeals. Finally, another main objective of this study is to provide new insights into the effectiveness of rational advertising appeals in times of crisis, which guide several theoretical and practical implications of the current research.

2. Literature review

2.1. Air travel in the COVID-19 pandemic

Governments around the world reacted to the risk of transmitting the COVID-19 disease by air travel by limiting air traffic, suspending flights or events, and closing whole airports (Gösling et al., 2020). Additionally, official travel warnings further harmed the whole travel industry (Monmousseau et al., 2020). Aviation employment decreased by 35% during the 2020 time period (IATA, 2020), as caused by an overall decline of nearly 60% in the total spending of air travellers in contrast to the pre-COVID phase (IATA, 2020) and a decrease of planned flight connections throughout 2020 at a rate of 40.6% (Bielecki et al., 2020).

It is not only travel restrictions imposed by most countries across the globe that have resulted in decreased passenger numbers, but also changes in travel behaviour caused by the COVID-19 pandemic itself (Neuburger and Egger, 2020). Travellers fear the risk of becoming infected with COVID-19 while outside of their home country, with the level of risk varying in accordance with the end destination and its current COVID-19 situation (Abdullah et al., 2020). Many passengers have either postponed or completely cancelled their flights. In contrast to pre-pandemic times, safety measures are considered highly relevant for passengers. In a survey conducted among 600 respondents from the age of 65 and above, social distancing, regular sanitation, and face masks were rated among the most important factors that contribute to a safe trip (Graham et al., 2020). Accordingly, communicating about an airline’s safety measures to prevent the spread of the virus seems to be a promising advertising strategy to revitalize the airline industry.

To prevent the coronavirus disease from spreading, countries across the globe have introduced increased safety measures to reduce spread (Fischer et al., 2020). As an on-board social distancing strategy, many airlines now leave the middle seat empty (Milne et al., 2020) or practice a sequential mode of boarding (see Sun et al., 2021 for an excellent review on on-boarding practices during the COVID-19 pandemic). Cabin air filtration systems have also been implemented in nearly all passenger aircrafts (Congressional Research Service, 2020). Other air purification tools may include UV-ray disinfection, which limits the disease spread and has accelerated the restart of airline operations (Pecho et al., 2020). The disinfection of the entire aircraft prior to and after each flight is also becoming a standardized procedure (Bielecki et al., 2020). In addition to face masks, the Center for Disease Control and Prevention (2021) now also recommends that airlines perform temperature checks for both travellers and staff. Based on the specific requirements of a given country, airlines also require travellers to hold a negative certificate or to complete a COVID-19 test either before and/or upon arrival in the final destination within a pre-specified period (Fiterelli, 2020) in order to enter said country.

More recent literature investigating the impact of the COVID-19 pandemic on the air travel industry concentrates on the long-term effects. For instance, Dube et al. (2021) note that the global aviation industry’s recovery process is slow, although the authors also point out that the pandemic offered airlines a fresh start in terms of achieving efficiency through fuel-efficient aircraft. In this context, it is important to note that the air industry has been facing traumatic events in the past, such as the two Malaysian airline accidents in 2014 (Malaysian Airlines Flight MH17, July 17 and Malaysian Airlines Flight MH370, March 8). Likewise, large-scale strikes of flight attendants and pilots hit China airline hard in 2016 and 2019 (Hsiu-Ying Kao et al., 2020). However, such airline-specific events mainly result in consumers’ avoidance of certain airlines since image rebuilding after an accident is difficult (Yang et al., 2018). In contrast, 9/11 affected the whole aviation industry and resulted in operational changes and safety procedures, similar to the health protocols assuring safety during the COVID-19 pandemic (IATA, 2021). Consumers’ perceived airline crisis management capability has been identified as major predictor of brand attitude after strikes (Hsiu-Ying Kao et al., 2020) and crisis communication is an important determinant of an airline’s reputation during the COVID-19 pandemic (Scheiwiller and Zizka, 2021). In this context, maintaining trust with customers (Amanwah-Amoah, 2020) as well as reducing perceived risk (Beck et al., 2018) have been mentioned as important determinants of travel behavior after traumatic events.

2.2. Advertising appeals, perceived health risks and trust in the airline

The COVID-19 outbreak has caused airlines to adapt their marketing strategies and focus on different aspects than before the pandemic. Advertising literature differentiates between two different types of appeals: Emotional appeals convey feelings and refer to the hedonic benefits of a product (Holbrook and Batra, 1987; Adaval, 2001). In contrast, rational appeals aim to stimulate consumers’ cognitive thinking by providing information on the utilitarian or practical features of a product or service (Amaldoss and He, 2010; Hornik et al., 2017). Emotional appeals are omnipresent in tourism advertising (Li, 2019) and represent the preferred appeal for travel service advertising (Albers–Miller and Royne Stafford, 1999). Research indicates that emotional appeals for airlines have a significantly stronger positive impact on brand attitude as compared to rational appeals (Zhang et al., 2014). Nevertheless, the COVID-19 pandemic might have changed the superior effects of emotional appeals.

Nowadays, entertainment and enjoyment may not be the first considerations when booking travel, but rather the safety of the transportation mode. Recent research demonstrates that the ongoing COVID-19 pandemic strengthens tourists’ risk perceptions (Bhatti et al., 2020).
Perceived risk relates to “the individual’s perceptions of the uncertainty and negative consequences of buying a product (or service)” (Reisinger and Mavondo, 2005 p. 212) or tourists’ subjective feelings in regard to the potentially negative consequences and impact of travel itself (Zhan et al., 2020, p. 2). These negative consequences can be of financial, performance, physical, psychological, and social nature (Jacoby and Kaplan, 1972). In the context of tourism, physical risk represents health risk perceptions that can be caused—among other things—by travel-related diseases, hygiene (Maser and Weiermair, 1998, p. 113), or other conditions endangering tourists’ health (Lepp and Gibson, 2003). The health risks associated with a particular destination and its impact on travel intentions during the COVID-19 pandemic has attracted research attention (Bhati et al., 2020), while the risks associated with air travel as a mode of transportation in and of itself have not been explored thus far.

Of most importance for the current research is the finding that risk perceptions are often formed from information available in the media (Lepp and Gibson, 2003; Villacé-Molina et al., 2021). Tourists actively search for information when they have high-risk levels to reduce their perceived risk (Maser and Weiermair, 1998). In this context, research proposes that the communication of health and safety measures or any other activities that contribute to a safe travel trip will likely reduce tourists’ risk perceptions (Neuburger and Egger, 2020). A common source of information is video platforms (Zhan et al., 2020). Social media and video-sharing websites likely shape tourists’ behaviour (Cohen et al., 2014) as well as tourists’ risk perceptions (Garg, 2015). Risk perceptions are important in a travel context since they strongly influence travel intentions. For instance, Reisinger and Mavondo (2005) demonstrate a causal linkage between perceived risk and tourists’ intention to travel internationally in their seminal work on travel anxiety and travel intentions.

**H1.** Safety advertising appeals decrease perceived health risk associated with air transportation in the COVID-19 pandemic.

**H2.** Perceived health risk mediates the impact of safety advertising appeals on a) air travel intention and b) airline recommendation intention.

However, the perceived risk might not represent the only underlying mechanism explaining consumers’ travel intentions during the COVID-19 pandemic. Research acknowledges the relevance of targeted messaging that supports travellers’ trust (Lamb et al., 2021). Given the relevance of safety measures for travellers’ decisions regarding the mode of transportation (Graham et al., 2020), we propose that trust might serve as an important underlying mechanism that explains why communicating about safety measures enhances air travel intentions. Based on empirical data confirming the passengers’ sensitivity to safety measures at the airport, trust has been associated with the communication of safety measures in the airline industry on a theoretical level (Hassan and Salem, 2021). Likewise, another study proposes that the airline industry actively needs to regain passengers’ trust (Tabares, 2021). While the mediating role of trust on the impact of communication strategies on travel intention has not been researched in the particular context of COVID-19, related research confirms the mediating role of trust on the impact of an airline’s image when it comes to avoiding the airline after an accident (Yang et al., 2018). In the context of COVID-19, trust has been identified as an important predictor of destination visit intention and reputation (Hassan and Soliman, 2021). Against this background, we propose that:

**H3.** Safety advertising appeals increase trust in the airline in the COVID-19 pandemic.

**H4.** Trust in the airline mediates the impact of safety advertising appeals on a) air travel intention and b) airline recommendation intention.

Finally, it is reasonable to assume that perceived health risk is negatively related to trust in the airline (Akamavi et al., 2015; Kim et al., 2008). In other words, we assume that strategies aiming to reduce perceived health risk increase trust in the airline, which in turn positively affects consumer responses. Qualitative data confirm that safety measures are a major concern when it comes to passengers’ trust in the airport (Lamb et al., 2021). In addition, prior research demonstrates that perceptions of the service provider can influence trust (Kim et al., 2008). Both emotional (reputation, interaction, and familiarity) and cognitive (security and privacy, IT quality, Airbnb traits) perceptions have been identified to impact trust in the Airbnb (Yang et al., 2019). In the context of electric airplanes, reducing consumers’ perceived risk is essential for establishing trust and adoption behaviour (Han et al., 2019). Following this line of reasoning, we suggest that reducing perceived risk increases trust in the airline provider. More formally, we propose that:

**H5.** Perceived health risk and trust in the airline sequentially mediate the positive impact of safety appeals on (a) air travel intention and (b) airline recommendation intention.

Fig. 1 demonstrates the conceptual research framework of this study.

3. Methodology

The overall objective of the empirical investigation is to explore how individuals react to rational (safety) appeals vs. emotional appeals in terms of health risk perceptions and trust in the airline. Furthermore, the mediating role of both health risk perceptions and trust in the airline on the impact of safety (vs. emotional) appeals in terms of air travel intention and airline recommendation intention are investigated (see Fig. 1).

3.1. Research design and procedure

The study employed one factor (emotional vs. safety advertising appeal) between-subjects design. The study has been approved by the authors’ institutional internal reviewer board. A sample of 218 participants was randomly allocated to one of the two conditions (emotional vs. safety advertising appeal). Three different data collection methods were applied to acquire respondents with differing characteristics. Firstly, following a convenience sampling procedure, data were collected online by posting the link to the experiment on various social media platforms. Secondly, another convenience sample constituted by students of an undergraduate business class participated in the online experiment. Finally, to complement the convenience sample with panel data, the link to the experiment was distributed on the micro-tasking platform Clickworker.com. Table 1 summarizes the participants’ characteristics.

Advertising appeal was manipulated by two different real-world video advertisements, which were available on the video platform YouTube. Both advertisements promoted Emirates Airlines and had the

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1 A power analysis (desired power = .80, alpha = .05, effect sizes=.30) revealed a required sample size of 105 respondents for an indirect effect (Kenny, 2017).
same length of one min. Neither video included any verbal narration, but there was background music. The emotional advertisement (Emirates, 2012) shows people in a working environment at various destinations, the nightlife of different cities (i.e., the city’s illuminated skyline, people having fun and dancing at a nightclub) as well as other beautiful pictures of various locations of the world. The advertisement ends with the slogan, “Tomorrow believes, the more of our world we see, the richer we become.” The safety appeal advertisement demonstrates several safety measures at the airport facilities and on the airplane (Emirates, 2020), including digital displays that indicate the distance requirements, glass panes at the check-in borders, and employees who are wearing face masks, hand gloves, and safety goggles as well as staff who are pictured cleaning and disinfecting the airplane. During the whole commercial, subtitles inform the viewer about the applied safety measures.

The experiment started by collecting the consent of the participant with a message about voluntary participation. Subsequently, respondents were exposed to the TV commercial. A timer assured that participants watched the whole commercial and did not skip the video. Afterwards, the survey started with a manipulation check that consists of a set of questions: The first question asks respondents if they noticed any safety measures promoted in the video, while the second set of questions asked if the content was informative or emotional. The following sections assessed the major constructs of interest, namely perceived health risk, trust in the airline, air travel intention, and recommendation. In the final section of the online questionnaire, respondents’ general travel behaviour, as well as travel behaviour in the last year (in terms of frequency of air travel) was measured in addition to prior travel experience with Emirates Airline. The questionnaire ends with demographic measures (age, gender, highest education). Table 1 summarizes the participant profiles for the two conditions and in general.

3.2. Measures

A dichotomous item assessed whether respondents noticed the promoted safety measures: Did you see any COVID-19 safety measures in

| Table 1 | Participants’ profile. |
|---------|------------------------|
| Variable | Informational appeal N = 109 | Emotional Appeal N = 109 | Total |
| Gender  | Male  | 44% | 33% | 39.5% | Female  | 55% | 66% | 60.5% |
| Prefer not to say  | 1% | 1% | 1% | Age (mean and standard deviation) | 34 years | 32 years | 33 |
| Age distribution | 18–34 years | 38% | 39% | 38% | 25–34 years | 20% | 30% | 25% | 35–44 years | 17% | 16% | 17% | 45–54 years | 12% | 10% | 11% | 55–64 years | 12% | 4% | 8% | ≥65 years | 1% | 1% | 1% |
| Highest education | University | 61% | 58% | 59% | High School | 34% | 40% | 36% | Vocational School | 8% | 1% | 4% | Compulsory Schooling | 1% | 1% | 1% |
| Frequency of travel in the last year | 2.08 | 1.6 | 1.9 |
| Frequency of travel per year in normal times (not in COVID-19 times) | 4.88 | 4.9 | 4.8 |
| Travel experience with Emirates Airlines | Yes | 29% | 50% | 45% | No | 61% | 50% | 55% |

3.3. Data analysis and results

3.3.1. Manipulation check

The analysis started with an investigation of the success of the manipulation of the advertisements. A Chi-Square test confirmed that there was a significant association between the two experimental groups (emotional vs. safety appeal) and safety appeal recognition ($\chi^2 (2, N = 218) = 160.64, p < .01$). A multivariate analysis of variance (MANOVA) with the group variable (emotional vs. safety advertising appeal) and the two items assessing emotionality vs. informativeness of the appeal was estimated. The analysis reveals a significant model (Pillai’s trace = .61, $F (2, 215) = 167.55, p < .01$). Participants in the emotional appeal group rated the advertisements as significantly more emotional as compared to respondents in the safety appeal group ($M_{emotional} = 3.74, vs. M_{safety} = 3.45; F(1, 216) = 123.41, p < .01, \eta^2 = .36$). Likewise, the respondents in the rational appeal condition evaluated the advertisement as more informative as compared to those in the emotional condition ($M_{emotional} = 3.13$ vs. $M_{safety} = 6.09; F(1, 216) = 250.12, p < .01, \eta^2 = .54$) (see Table 3). Accordingly, the manipulation worked out as intended.

| Table 2 | Measurement of constructs. |
|---------|-----------------------------|
| Constructs/items | Cronbach’s alpha |
| Manipulation check | The content was informative. | NA |
| Perceived health risk (Jacoby and Kaplan, 1972) | The content was emotional. | NA |
| Trust in the airline (Forgas et al., 2010) | The information offered by the company is sincere and honest. | .91 |
| Airline recommendation intentions (Forgas et al., 2010) | The company is concerned about its customers’ needs. | .93 |
| Air travel intentions (Forgas et al., 2010) | The company has the resources and experience to do its job well. | .96 |
| It would say positive things to other people about this airline. | .94 |
| I would recommend this airline to anyone who asked my opinion. | It is likely that I would encourage my friends and acquaintances to fly with this airline. | .86 |
| I will consider this airline when I intend to fly in the future. | It is likely that I will use this airline in the near future. | .86 |

I expect to fly with this airline in the future. | .86 |

The table below shows the measurement of constructs.
3.3.2. Hypothesis testing

A multivariate analysis of covariance with the experimental conditions (emotional vs. safety advertising appeal) as factor variables, perceived health risk and trust in the airline as dependent variables and prior travel experience with Emirates Airlines as the control variable was estimated (Pillai’s trace = 0.19, $F(2,214)$, $= 24.96$, $p < .01$) to test $H1$ and $H3$. Supporting $H1$, participants in the safety appeal condition reported lower perceived health risk as compared to respondents in the emotional appeal condition ($\eta^2 = 0.07$). In line with our expectations, participants in the safety appeal condition (as compared to the emotional appeal condition) stated higher trust levels in the airline ($\eta^2 = 0.17$) (see Table 3 and Fig. 2).

The analysis proceeded with testing $H2a$, $H4a$, and $H5a$. For testing $H2a$ (safety appeals $\rightarrow$ perceived health risk $\rightarrow$ travel intention) and $H4a$ (safety appeals $\rightarrow$ trust in the airline $\rightarrow$ travel intention) and $H5a$ (safety appeals $\rightarrow$ perceived risk $\rightarrow$ trust in the retailer $\rightarrow$ travel intention), a serial mediation model with 10,000 bootstrap samples was estimated using the PROCESS macro in SPSS (model 6, 95% CI, Hayes, 2017). The experimental conditions served as independent variables (with the emotional advertising appeal condition representing the reference category) perceived health risk and trust in the airline were specified as mediators, travel intentions represented the dependent variable, and prior travel experience with Emirates Airlines (1 = yes, 2 = no) was considered as a control variable. Validating the results obtained by the MANCOVA, the safety appeal had a significant negative effect on perceived health risk ($-.84$, $p < .01$) and a significant positive effect on trust in the airline ($0.79$, $p < .01$) The inspection of the indirect effects confirms the mediating role of perceived health risk ($0.15$, CI $[0.05, 0.29]$) and trust in the airline ($0.50$ $[0.30, 0.72]$) on the influence of safety appeals on travel intention. In addition, the analysis reveals a significant total effect ($0.38$ $p = .04$) which indicates the total extent to which the travel intention changes as caused by the direct effect of safety appeal ($-.38$, $p < .01$) as well as the two indirect effects (see Table 4). Importantly, the total effect of safety appeals is positive and significant, which supports the postulated favourable effect of safety appeals on air travel intentions during the COVID-19 pandemic. Hence, $H2a$ and $H4a$ were supported. The data also confirm $H5a$, the serial mediation of safety appeals $\rightarrow$ perceived health risk $\rightarrow$ trust in the airline $\rightarrow$ travel intention ($0.11$, CI $[0.05, 0.19]$). The lack of any prior experience with Emirates airlines harmed travel intention ($-.38$, $p = .01$), but no effect on perceived health risk ($0.27$, $p = .19$) or trust in the airline ($-.06$, $p = .69$) was observed (see Table 4).

A second serial mediation model (model 6, 95% CI, Hayes, 2017) with the same independent, mediator, and control variables, but with airline recommendation intention as the dependent variable was estimated to test $H2b$, $H4b$, and $H5b$. The model confirmed the postulated indirect effect of perceived health risk ($0.10$, CI $[0.01, 0.23]$) and trust in the airline ($0.56$, CI $[0.36, 0.79]$) on airline recommendation intention ($H2b$ and $H4b$) as well as the sequential mediation of safety appeals $\rightarrow$ perceived risk $\rightarrow$ trust in the retailer $\rightarrow$ airline recommendation intention ($0.12$, CI $[0.05, 0.22]$). Consequently, $H5b$ is supported. The total effect of safety appeals on airline recommendation intention was positive and significant ($0.78$, $p < .01$). The absence of a significant direct effect ($-.01$, $p = .95$) indicates a full mediation of perceived health risk and trust in the airline on recommendation intention. Respondents with no experience with Emirates airline had lower intentions to recommend the airline ($-.63$, $p < .01$) (see Table 4).

Table 3

| Consequence                          | Emotional appeal | Rational appeal | Difference | $F$  | $p$  | Effect size ($\eta^2$) |
|--------------------------------------|------------------|-----------------|------------|------|-----|------------------------|
| Manipulation check                   |                  |                 |            |      |     |                        |
| The content was …                    |                  |                 |            |      |     |                        |
| … informative                        | 3.13 (1.63)      | 6.09 (1.09)     | 2.96       | 250.12 | <.001 | .54 |
| emotional                            | 5.74 (1.29)      | 3.45 (1.72)     | 2.29       | 123.41 | <.001 | .36 |
| Hypotheses testing                   |                  |                 |            |      |     |                        |
| Perceived health risk ($H1$)         | 3.54 (1.60)      | 2.73 (1.37)     | 0.81       | 17.20  | <.001 | .07   |
| Trust in the airline ($H2$)          | 4.97 (1.17)      | 5.92 (1.93)     | 0.95       | 44.90  | <.001 | .17   |

Fig. 2. Mean comparisons for perceived health risk and trust in the airline between emotional and safety advertising appeal conditions.

2 A robustness check was conducted with a sample split based on the different sample procedures: The first sample included data collected based on the convenience sampling procedures (data collected via social media platforms and student sample) ($N = 97$) and the panel sample constitutes the second sample ($N = 121$). The multivariate analysis of covariance with the same variables included as in the main analysis revealed significant models for both data sets (Sample 1: Pillai’s trace = 0.74, $F(2,93)$, $= 3.72$, $p < .05$; Sample 2: Pillai’s trace = 0.32, $F(2,117)$, $= 27.24$, $p < .01$).
Theoretical implications

Guided by perceived risk theory and trust theory, the current research developed a theoretical model that considers perceived health risk and trust in the airline as underlying mechanisms that explain the impact of two advertising appeals (emotional vs. safety appeal) on air travel intention and airline recommendation intention. The theoretical framework was tested with an experimental study design, which allowed us to assess the causal relationship between advertising appeals and the mediating constructs. In doing so, the findings of this research offer a better understanding of the underlying mechanism that drives travel intentions during the COVID-19 pandemic. The results further highlight the importance of perceived health risk perceptions and trust as underlying mechanisms explaining the impact of safety appeals on travel intentions and recommendation during the COVID-19 pandemic. Perceived health risk further increases trust in the airline. The negative direct effect of safety appeals on travel intention reveals that there might be other underlying mechanisms that explain the negative effect of safety appeals on travel intentions. One possible explanation could be that safety appeals prompt negative thoughts about the pandemic, which in turn, result in a negative effect. Another option is the absence of another positive mechanism, such as the communication of positive feelings. However, these are only speculations and require future empirical investigations.

### Table 4
Results of mediation analysis.

| Variable                      | M1 Perceived health risk | M2 Trust in the airline | Y1 Travel intention | Y2 Airline Recommendation |
|-------------------------------|--------------------------|-------------------------|---------------------|---------------------------|
| Safety appeal                 | a1 = -0.84 (.20)         | a2 = 0.79 (.14)         | c1 = -0.38 (.15)    | c2 = -0.01 (.15)          |
| Perceived health risk (M1)   | b1 = -0.21 (.05)         | b2 = 0.63 (.07)         | b1 = -0.38 (.05)    | b2 = 0.71 (.07)           |
| Trust in the airline (M2)    |                          |                         | h1 = -0.12 (.05)    | h2 = -0.01 (.05)          |
| Prior experience (Gov)       | f1 = 0.27 (.20)          | g1 = -0.06 (.14)        | h1 = -0.38 (.14)    | h2 = -0.63 (.14)          |
| Total effect                 |                          |                         | c1 = 0.38 (.17)     | c2 = 0.78 (.18)           |
| Constant                      | i_0 = 3.98 (.43)         | i_1 = 4.99 (.34)        | i_2 = 3.52 (.48)    | i_3 = 2.64 (.48)          |

**Indirect effects (travel intention)**

| Safety appeal –> Perceived health risk –> Travel intention |
|----------------------------------------------------------|
| a_1b_1 = 0.15 [0.05, 0.29]                                |

**Indirect effects (recommendation)**

| Safety appeal –> Perceived health risk –> Recommendation |
|---------------------------------------------------------|
| a_1b_2 = 0.10 [0.01, 0.23]                              |

3.4. Discussion

In sum, the results confirm our theoretical reasoning that safety appeals reduce health risk perceptions while at the same time, increase trust in the airline. The findings further confirm health risk perceptions and trust as underlying mechanisms explaining the impact of safety appeals on travel intentions and recommendation during the COVID-19 pandemic. Perceived health risk further increases trust in the airline. The negative direct effect of safety appeals on travel intention reveals that there might be other underlying mechanisms that explain the negative effect of safety appeals on travel intentions. One possible explanation could be that safety appeals prompt negative thoughts about the pandemic, which in turn, result in a negative effect. Another option is the absence of another positive mechanism, such as the communication of positive feelings. However, these are only speculations and require future empirical investigations.

4. Conclusion

The COVID-19 pandemic has changed travel patterns around the world. The aviation industry reacted to travellers’ rising concerns about becoming infected with the disease by introducing several safety measures to ensure a safe trip. However, these safety measures need to be communicated to travellers in order to assure that air travel will return to a normal level. Based on this background, the current research explored how consumers react to two different kinds of advertising appeals during the COVID-19 pandemic. Employing an experimental design, the current research demonstrates that during the COVID-19 pandemic, consumers react more favourably to safety as compared to emotional appeals. More specifically, participants indicated higher air travel intentions and higher intentions to recommend the airline when they were exposed to safety appeals as compared to emotional appeals. Furthermore, our data reveal that this effect is sequentially mediated by perceived health risk and trust in the airline. The results of this study offer several theoretical and managerial implications.

4.1. Theoretical implications

In contrast to extant research, the current study concentrated on the risk associated with the transportation mode itself rather than the risk associated with a specific destination. Although safety levels have been identified as having a negative correlation to health risk perceptions (Reisinger and Mavondo, 2005), safety has mainly been explored on a destination level. However, the COVID-19 pandemic has increased traveller’s concerns about safety measures during the trip (Lamb et al., 2021). Our research confirms that the communication of safety measures during air transportation can reduce perceived health risk, which, in turn, increases trust in the airline and prompts positive consumer responses (travel intention, recommendation).

Hence, our research uncovers the relationship between the two mediating constructs of perceived health risk and trust in the airline. Reducing perceived health risk represents a promising means to increase trust because trust is an important determining factor for travel decisions (Graham et al., 2020). Based on our findings, it can be concluded that—during the COVID-19 pandemic—safety appeals have a direct effect on trust in the airline as well as an indirect effect via perceived health risk.

An inspection of the direct effects reveals the interesting finding that there might be other mechanisms explaining a negative effect of safety appeals on travel intention. While the results point to a full mediation of the positive effects of perceived health risk and trust in the airline on travel intention, other mediators need to be explored in future research which explains the direct negative effect of safety appeals on travel intention. Based on extant research reporting a superiority effect of emotional appeals for tourism advertisements in non-pandemic times (Albers-Miller and Royme Stafford, 1999), it could be that the absence of any positive emotional appeals explains this unexpected result. Nevertheless, the total effects for both dependent variables are positive and significant. This means that both perceived health risk and trust in the airline mediate the positive impact of safety appeals on air travel intentions and airline recommendation intentions.
4.2. Managerial implications

In addition to the theoretical contributions of our research, the findings provide some managerial implications. Firstly, our study demonstrates that advertising appeals represent a useful means for communicating safety measures in the aviation industry. Hence, the results offer strategic guidance on advertising efforts during the COVID-19 pandemic. Although emotional appeals have long been used to promote the air travel experience, the pandemic seems to have shifted consumers’ decision criteria to a safer rather than exciting travel as in the pre-journey stage.

Secondly, the findings on the relevance of perceived health risk might encourage airline managers to take additional measures to convince travellers of the safety of the flight. The current research explored just one opportunity out of many to communicate safety measures. For instance, an airline might not rely on TV commercials, but also earned media in the form of news articles. Print advertisements might also be a fruitful tool to convey the image of a safe travel trip. The adapted scales implemented in this study might be used to assess the perceived health risk-reducing potential of different forms of communication. Thirdly, the analysis reveals a significant positive effect of prior experience on both, travel intention and airline recommendation intention. Hence, it might be a promising approach to target marketing strategies during the COVID-19 to existing customers.

Finally, also from a societal perspective, our research offers interesting implications. The benefit of connectivity around the world as facilitated by the airline industry has suffered from the global health crisis (Liu, 2020). A recent study emphasizes the relevance of communication as a measure to reactivate the tourism industry (Villac-e-Molinero et al., 2021), Hence, not only airlines, but also policymakers might consider relying on safety appeals in future communication strategies to revive the air travel industry.

4.3. Future research and limitations to the findings

As with all empirical studies, our research must deal with some limitations that provide avenues for future research. Firstly, future research might explore the interaction between advertising appeals and different personality types. As Neuburger and Egger (2020) reveal, demographic and personality traits might impact individuals’ risk perceptions. Secondly, it would be interesting to explore the impact of stimuli other than TV commercials on perceived health risk and trust in the airline and subsequent behavioural intentions. For instance, it would be fruitful to explore how social media content impacts travellers’ risk perceptions. A different methodological approach (e.g., a text mining approach) might validate the yielded findings. Although natural experiments are difficult to organize, this kind of experiment would considerably enhance the external validity of the current study’s results. A promising approach would involve collaborating with an airline and assessing the booking numbers after different TV commercials (emotional vs. safety appeals). The investigation of other appeals (e.g., cultural appeals) and their impact on perceived health risk and trust in the airline would be another area for future research. Finally, future studies might replicate the study with a focus on differences between nationalities. Since the respective nationality of each participant was not collected in the experiment, the current study does not include any conclusions on the impact of different nationalities or residences, which represents both a limitation of the study and a fruitful avenue for future research on this subject.

Author statement

Marion Garaus: Conceptualization; Data curation; Formal analysis; Methodology; Supervision; Visualization; Writing - original draft; Writing - review & editing. Melanía Hudáková: Writing - original draft; Conceptualization; Data curation.

Declaration of competing interest

The authors declare that they have no conflict of interest.

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