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ABSTRACT

Individuals all around the world are under constant threat of terrorist attacks. Not surprisingly, terrorist attacks have a strong impact on tourism. However, tourism research is silent on how people respond online after terrorist attacks. Analyzing 154,390 tweets that were posted on Twitter after eight major terrorist attacks that occurred between November 24, 2016 and January 10, 2017, our results demonstrate that people show more anger-related compared to fear-related emotions online after terrorist attacks. We call for further research in tourism to understand how tourism managers and public policy makers can leverage social media after terrorist attacks.

     Keywords: terrorist attacks, tourism, anger, fear, social media

Tourism implications of online response to terrorism

Introduction

According to the Global Terrorism Index 2019, the impact of terrorism is widespread with 71 countries experiencing at least one death from terrorism in 2018, which is the second highest number of countries that recorded one or more deaths since 2000. The widespread terrorist attacks mean that people live constantly under the threat of a terrorist attack: if not, they are exposed to news about those attacks.

Not surprisingly, research on tourism has extensively investigated the relationship between terrorism and tourism (Seabra, Reis, & Abrantes, 2020; Walters, Wallin, & Hartley, 2019). Tourists make their travel decisions based on the perceived risk associated to a destination (Fuchs & Reichel, 2011) with frequency and severity of the terrorist attacks being negatively associated with the touristic demand (Pizam, 1999). According to this stream of research, people avoid places that are threatening (Rittichainuwat & Chakraborty, 2009).

Other research shows that costs associated with preventing the risk, culture, and past experiences influence people's tourism-related decisions after terrorist attacks (Araña & León, 2008; Ingram, Tabari, & Watthanakhomprathip, 2013; Reisinger & Mavondo, 2006). Accordingly, there are tourists who are resilient to crisis (Hajibaba, Gretzel, Leisch, & Dolnicar, 2015), who would still travel regardless of the terrorism risk (Seabra, Dolnicar, Abrantes, & Kastenholz, 2013).

Although research shows different consequences of terrorist attacks on tourism (Saha & Yap, 2014; Seabra et al., 2020), there is gap in the literature that shows how people respond in social media when they learn about a terrorist attack. In this research, we heed the call of previous research on terrorist attacks and tourism (Seabra et al., 2020) and we investigate how people emotionally respond to terrorist attacks in an online context. Examining behaviors of people in social media after a terrorist attack is relevant for tourism

research because social media can highly affect destination choices of people (Jansson, 2018; Luo & Zhong, 2015; Narangajavana, Fiol, Tena, Artola, & García, 2017). Hence, understanding how people emotionally respond on social media after a terrorist attack would help tourism managers and public policy makers to better leverage social media to influence people's tourism-related decisions after terrorist attacks.

Method and Approach

Data collection procedure

To investigate how people emotionally respond on social media after terrorist attacks, we captured tweets regarding the terrorist attacks in Turkey (Adana – November 24th 2016; Istanbul – December 10th 2016; Kayseri – December 17th 2016; Ankara – December 19th 2016; Reina – December 31st 2016; and Izmir – January 5th 2017), Germany (Berlin – December 20th 2016), and Israel (Jerusalem – January 8th 2017). We specifically chose this timeframe because late 2016 and early 2017 is the period, when there have been back-to-back terrorist attacks with 2016 being the third deadliest year since 2000 according to the Global Terrorism Index 2017.

We collected Twitter posts immediately after the news regarding specific terrorist attacks were aired on major TV channels. The maximum amount of time that passed between the start of the data collection and the announcement of the terrorist attack was three hours. All the Twitter data were collected through the Twitter Application Programming Interface (API) using the hashtag associated to the place of the attack. After cleaning the data from spam tweets, we had a total of 154,390 tweets (original N = 170,093).

Next, consistent with previous research, we used a linguistic assessment tool to analyze all the single tweets: Linguistic Inquiry and Word Count (LIWC2015; Pennebaker, Boyd, Jordan, & Blackburn, 2015).

Measures

Emotional responses. We obtained a variable called *anger*, with information on the relative frequency of words in each tweet that are classified as pertaining to the category *anger* (e.g., angry, mad) and a variable called *fear*, which indicated the relative frequency of words that belong to the category *fear* (e.g., fear, scared). We obtained these two variables because anger and fear are the two most salient emotions after terrorist attacks.

Mortality-salience. We measured *mortality salience* with the variable called *death* obtained from LIWC2015, with information on the relative frequency of the number of words in each tweet that are classified as pertaining to the category *death* (e.g., death, coffin).

Analytic procedure

Initially, we tested whether people display anger-related emotions or fear-related emotions online after terrorist attacks, by comparing the mean of *anger* to the mean of *fear* in each tweet, using a Paired-Samples T-Test.

Next, a predictive model of anger-related emotions (Model 1) and fear-related emotions (Model 2) was created using only mortality salience scores as independent variable first and introducing in the next step all the controls (Model 3 and Model 4, respectively). Please refer to table 1.

Results

The results of the Paired-Samples T-Test show that individuals score higher on *anger* (vs. *fear*) when commenting online after terrorist attacks (M_{Anger} = 2.42, SD_{Anger} = 3.45 vs. M_{Fear} = 1.17, SD_{Fear} = 2.33, $t(154,389)$ = -133.08, $p < .001$).

Correlation results suggest that greater usage of anger-related and fear-related words is significantly correlated with greater mortality salience (rs_{anger} = .46, $p < .001$ and rs_{fear} = .46, $p < .001$).

The results of the linear regression suggest a positive effect of mortality salience on anger-related emotions ($r = 0.58$, $p < .001$) and but a negative effect of mortality salience on fear-related emotions ($r = -0.03$, $p < .001$).

We conducted a MANOVA to compare the extent to which mortality salience affects anger-, compared to fear-related, emotions. The results suggest that the anger-related emotions are more strongly affected by mortality salience after terrorist attacks compared to fear-related emotions ($F(1, 154,388)$ = 32,802.18, $p < .001$).

Finally, we ran a bootstrapping mediation model analysis to investigate the role of mortality salience on people's online responses after terrorist attacks.

Terrorist attacks were measured with a binary variable, which takes the value 1 if the tweet was posted after a terrorist attack news or the value 0 if it was posted when there was no news (collected at least 7 days after the attacks using #tweetoftheday). We used STATA to randomly draw a set of 10 percent of the group of tweets related to the terrorist attacks, resulting in 15,439 tweets (vs. 12,298 tweets in the control group).

The results of the mediation with bootstrap suggest a significant mediation (i.e., indirect) effect (β = .60; 95% CI = [.57; .64]) of mortality salience on the effect of terrorist attacks on anger-related emotions.

General Discussion

5

The results of this paper suggest that individuals engage in more online anger-related emotions than online fear-related emotions when there is news about a terrorist attack. The results of this research has several theoretical contributions.

First, despite the research that shows consequences of terrorism on tourism (e.g., Seabra et al., 2020), previous research is silent on how people emotionally respond online after a terrorist attack. The results contribute to the existing literature by showing the emotion-behavior relationship after a terrorist attack in an online context.

Second, previous research suggests that in times of crisis (e.g., pandemics, terrorism) society is captivated by insecurity and perceived loss of safety (Novelli, Burgess, Jones, & Ritchie, 2018; Rittichainuwat & Chakraborty, 2009). These results add to the previous literature by showing anger-related (vs- fear-related) emotions are more prevalent online when there is a terrorist attack.

These initial results can bolster future research on tourism management. First, although this research shows the relationship between terrorism and people's online behavior, the results do not show how these online behaviors after terrorist attacks may influence people's tourism-related decisions. Future research can investigate the effect of people's online anger-related and fear-related emotions on tourism-related decisions.

Second, we suggest future research can investigate how tourism managers can leverage social media after terrorist attacks. For example, will messages that include coping with fear after terrorist attacks have negative effect on influencing tourism-related behavior? Future research can test the types of messages that will be more effective online to influence tourism-related decisions after terrorist attacks.

Finally, public policy makers can question the effect of showing security precautions online to influence tourism-related decisions. Relatedly, future research can investigate the

kinds of online policies to be developed by public policy makers to influence tourism-related behavior after terrorist attacks.

We believe that the results of this research contribute to the existing literature on terrorism, tourism, and online behavior and bring a full research agenda to develop a deeper conceptual understanding in investigating how social media can be leveraged to influence tourism-related behavior after terrorist attacks.

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Table 1: Linear regressions (*B*, *se*) predicting anger- and fear-related emotions

	Model 1 (DV = Anger)	Model 2 (DV = Fear)	Model 3 (DV = Anger)	Model 4 (DV = Fear)
Mortality salience	.59***	.02***	.58***	-.03***
	(.00)	(.00)	(.00)	(.00)
Control variables				
Author Id Number			6.49e-20*	-.9.28e-20***
			(.00)	(.00)
Number of Likes			1.9e-04	-2.6e-04
			(.00)	(.00)
Number of Retweets			-.05e-04***	1.45e-04***
			(.00)	(.00)
Number of Friends on Twitter			7.42e-07	-5.02e-07
			(.00)	(.00)
Number of Previous Posts			1.36e-07**	-3.52e-07***
			(.00)	(.00)

Note: All mods *N*= 154,390. $^{+}p<=.10$; $^{*}p< .05$; $^{**}p<.01$; $^{***}p<.0$

Statement of Intended Contribution

What is the contribution to knowledge, theory, policy or practice offered by the paper?

According to the Global Terrorism Index 2019, the impact of terrorism is widespread with 71 countries experiencing at least one death from terrorism in 2018, which is the second highest number since 2000, meaning that people live constantly under the threat of a terrorist attack: if not, they are exposed to news about those attacks. Not surprisingly, terrorist attacks have a strong impact on tourism and there is extant research investigating the effects of terrorist attacks. However, tourism research is silent on how people respond on social media when they learn about a terrorist attack. Showing the responses of people after real terrorist attacks, we suggest how tourism managers and public policy makers can leverage social media and positively influence tourism after terrorist attacks. We also call for research on understanding the role of social media in tourism after terrorist attacks.

How does the paper offer a social science perspective / approach?

In this research, we call for a deeper conceptual understanding for people's responses to touristic destinations after terrorist attacks. This paper's findings suggest that people show more anger-related emotions compared to fear-related emotions online after a terrorist attack. In doing so, this is one of the first paper that shows how people respond online after a terrorist attack, which has implications both for tourism managers and public policy makers. Integrating developments in tourism, social psychology, and social media research, we call for further research to fully understand both the online and the offline behavior of people after terrorist attacks. While we used data from 8 major terrorist attacks that occurred between November 24th, 2016 and January 10th, 2017, future research can employ different empirical methods to help tourism managers and public policy makers to leverage social media after terrorist attacks to influence tourists' behavior.