Does Traumatic Experience Prohibit Travel? Impact of Centrality of Traumatic Event on Travel Fear during the Pandemic

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Introduction

The global pandemic has plunged the global economy into deep contraction. The tourism industries are among the most harmed economic sectors. Most international tourism has been shut down due to government restrictions. Capacity of airlines and destinations has shrunk because of social distancing. Apart from those physical constraints, the psychological impact of the pandemic diminishes tourism demands as well (Zheng, Luo, & Ritchie, 2021). By February of 2022, the pandemic has caused more than five million deaths (World Health Organization, 2022). People have been suffering from diseases, bereavements, economic loss, job loss or social isolation, etc. The pandemic became a major mental stressor to people (Bridgland et al., 2021), creating distress, exacerbating mental health issues, and causing travel-related anxiety. Put simply, the mass trauma derived from the pandemic threats the mental health of the society and people's travel demands.

While travel-related mental constraints, such as travel anxiety and travel fear (Zenker, Braun, & Gyimóthy, 2021; Zheng et al., 2021), have been constantly studied since the outbreak of pandemic, there is a lack of investigation on the influence of more general mental constraints on travel. Previous literature suggested that psychological constraints negatively impact leisure activities (Crawford, Jackson, & Godbey, 1991; Iso-Ahola & Mannell, 1985). However, less is known about the impact of extreme mental stressors such as traumatic experience on travel. Hence, this study aims to explore the impact of mental trauma caused by the pandemic on travel behavior. Specifically, this study explores the impact of centrality of traumatic events on travel fear and examines the possible mechanism and boundaries of this relationship. By doing so, this study makes a pioneering effort on the impact of traumatic experience in the context of tourism, introducing the concept of traumatic event centrality in the growing body of pandemic tourism research. Besides, knowledge on the impact of traumatic experience on travel can provide practical insights on tourism industry recovery.

Literature review

- Trauma and centrality of traumatic event

A traumatic event generally refers to one's exposure to threatened death, serious injury or sexual violence, which may occur directly or indirectly by witnessing the event, learning of the event occurring to a loved one, or repeated confrontation with aversive details of such event (American Psychiatric Association, 2013). Traumatic events fall outside the bounds established by a norm for human experience (Kauffman, 2013). Exposure to traumatic events is a prerequisite for the diagnosis of post-traumatic stress disorder (PTSD) and is also associated with a wide range of other adverse mental and physical health outcomes. Memories of traumas and other highly negative life events that form reference points for the organization of other personal memories are likely to have harmful impact on mental health (Berntsen, Willert, & Rubin, 2003).

Traumatic event centrality is the concept that describes the extent to which the memory of a highly stressful and traumatic event becoming the central part to a person's life (Berntsen & Rubin, 2006). There are three dimensions for centrality of traumatic event: whether the event is a reference point for everyday life; a central component of personal identity; and a turning point in the personal life story. Traumatic event centrality has been suggested to be positively related to PTSD and post traumatic growth (Boals & Schuettler, 2011).

- Rumination

Rumination refers to the cognitive processing of the event that involves continuously thinking about the event (Calhoun, Cann, Tedeschi, & McMillan, 2000), including intrusive rumination and deliberate rumination (Taku, Cann, Tedeschi, & Calhoun, 2009).. The former involves undesired and unsolicited negative, brooding thoughts about one's experience, such as automatic thought of the event, reliving the experience. The latter refers to voluntarily and intentionally reflecting on one's experience, such as making sense of the event, processing one's feelings about the event (Cann et al., 2011). The two types of rumination are positively correlated (Cann et al., 2011), yet differentially related to posttraumatic outcomes. Deliberate rumination is positively related with posttraumatic growth, which is positive psychological change as the result of trauma (Tedeschi & Calhoun, 2004), while intrusive rumination is positively related with posttraumatic stress (Chan, Ho, Tedeschi, & Leung, 2011).

- Conditioning theory of trauma

Conditioning theory refers to the behavioral process, whereby a response becomes more frequent to a given stimulus as a result of reinforcement (Bitterman, 2006; Bouton & Nelson, 1998). Conditioning theory has been applied to anxiety disorders (Brewin & Holmes, 2003). Through associations with the unconditioned stimuli of the traumatic events that directly evoke fear, neutral stimuli present in the traumatic scenario also acquire fear-eliciting qualities (Brewin & Holmes, 2003). Keane, Zimering, and Caddell (1985) proposed that a wide variety of associated stimuli can acquire the ability to trigger fear through the process of stimulus generalization and higher order conditioning.

- Travel fear

Fear is an emotion that manifests in several different ways and at different stages during travel (Fennell, 2017). Since the outbreak of the pandemic, people are more likely to contract virus through their journey than residency. The risk of contagion could trigger travel fear (Bali, Stewart, & Pate, 2016). Zheng et al. (2021) suggested that threat severity and threat susceptibility are the antecedents of pandemic travel fear.

- Travel involvement

Involvement is a concept derived from marketing literature. Involvement influences satisfaction or perceptions of quality (Clements & Josiam, 1995), influences individuals' knowledge about a destination (Gursoy & Gavcar, 2003) and how strongly tourists are attached to it (Gross & Brown, 2008).

- Hypotheses development

Memories of traumas and other highly negative life events are likely to have harmful impact on mental health (Berntsen et al., 2003). People who have high centrality are more likely to be mentally severely influenced by the traumatic event and develop post traumatic distress, in which fear is one of the frequently occurred emotions. According to conditioning theory, the fear triggered by a traumatic event can make neutral stimuli acquire conditional fear response(Keane et al., 1985).

Hypothesis 1: Centrality of traumatic event (the pandemic) is positively related with travel fear.

After traumatic exposure, rumination tends to occur (Calhoun et al., 2000). Deliberate rumination may help meaning-making after traumatic event and consequently foster growth, whereas intrusive rumination is associated posttraumatic stress (Chan et al., 2011). Thus with intrusive (vs. deliberate) rumination types, people's fear conditioning, which is the fear responses elicited by neutral event after paired with aversive events (Smelser & Baltes, 2001), increases (vs. decreases).

Hypothesis 2: Rumination mediates the relationship between centrality of traumatic event (the pandemic) and travel fear.

> Hypothesis 2a: Intrusive rumination mediates the relationship between centrality of traumatic event (the pandemic) and travel fear.
>
> Hypothesis 2b: Deliberate rumination mediates the relationship between centrality of traumatic event and travel fear.

People who have travel experience during the pandemic tend to be more risk tolerant and more experienced in traveling during the pandemic. Also, if people have more involvement on their trip during the pandemic, they tend to be more satisfied (Clements & Josiam, 1995) with and more attached to the trip (Gross & Brown, 2008). They may be more willing to travel again. Thus, this study hypothesizes the following statements.

Hypothesis 3: Travel frequency during the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and travel fear.

Hypothesis 4: Travel involvement during the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and travel fear.

Travel as a leisure activity, has therapeutic effect on travelers (Chhabra, 2020; Kaspar, Walton-Roberts, & Bochaton, 2019). Travel experience during the pandemic may reduce the impact of traumatic event. Rumination has been studied as the mechanism of cognitive therapy to lower the negative impact of depression (Van Vugt, Hitchcock, Shahar, & Britton, 2012). Therefore, we hypothesize the negative moderating effect of travel experience on the relationship between traumatic event centrality and rumination.

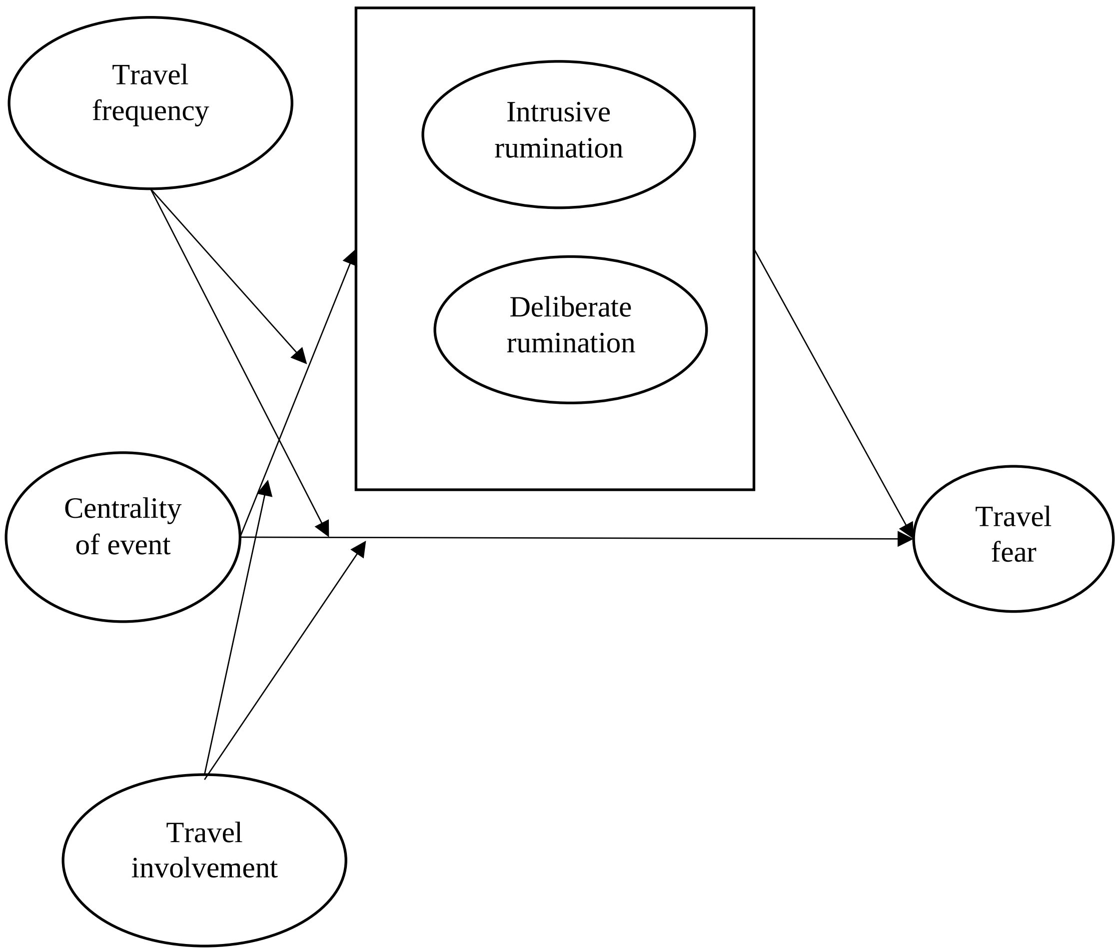
Hypothesis 5: Travel frequency in the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and rumination.

> Hypothesis 5a: Travel frequency in the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and intrusive rumination.
>
> Hypothesis 5b: Travel frequency in the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and deliberate rumination.

Hypothesis 6: Travel involvement during the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and rumination.

> Hypothesis 6a: Travel involvement during the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and intrusive rumination.
>
> Hypothesis 6b: Travel involvement during the pandemic negatively moderates the relationship between centrality of traumatic event (the pandemic) and deliberate rumination.

Figure 1. Conceptual framework



Methodology

The data for this study was collected by a national survey conducted by a professional survey company. By using quota sampling, we recruited a nationally representative group of consumers with similar profiles to the U.S. Census Bureau 2019 distribution (e.g., gender, age, and geographic regions). Both recruiting screening and data screening were used, either of which not passed resulted in termination.

The items for the constructs were adapted from relevant previous studies. Three items (i.e., frightened, nervous, anxious) of travel fear is adopted from Zheng et al. (2021). The measure of centrality of traumatic event is adopted from Berntsen and Rubin (2006). Measure of rumination is adopted from Cann et al. (2011). Measure of travel involvement is adjusted from Campos, Mendes, do Valle, and Scott (2017). The survey is based on 7-point Likert scales. Respondents' socio-demographics information was also included in the survey. The process marco for SPSS was used to analyze the mediation and moderation.

Results

Prior to hypothesis testing, data cleansing was conducted to remove invalid responses. The primary screening procedure resulted in 824 valid responses (47.6% females;

median age = 48). Respondents who never traveled during the pandemic (i.e., no travel involvement data) were further excluded, resulting in 787 valid responses.

Factor analyses were performed (extraction method Maximum Likelihood, Direct Oblimin rotation) confirming the hypothesized factorial structure, with high factor loadings on separate factors (loadings>0.5; eigenvalues≥1). Cronbach's alpha was 0.935 for centrality of traumatic event, 0.925 for travel fear, 0.972 for intrusive rumination, 0.955 for deliberate rumination, and 0.869 for travel involvement. A moderated mediation analysis was run using the PROCESS macro in SPSS (Hayes, 2013) to estimate the direct and indirect effects of centrality of traumatic event on travel fear through two types of rumination (intrusive and deliberate rumination) moderated by travel frequency and travel involvement in the pandemic (Model 10). The significance of the direct and indirect effects was evaluated by means of 5,000 bootstrap samples to create bias-corrected confidence intervals (CIs; 95%). 37 responses of the 824 were automatically deleted by the software due to missing data (i.e., no travel involvement data) in estimating the full model.

Evidence from the estimation of the model on the remaining 787 responses suggests there is a significant direct effect of centrality of traumatic event on travel fear ($\beta = 1.01$. $p < .05$), a significant indirect effect via intrusive rumination ($\beta = 0.28$; $p < .01$), and an insignificant indirect effect via deliberate rumination ($\beta = 0.07$). Traumatic event centrality is positively related to travel fear. The positive effect is partially through intrusive rumination, not deliberate rumination. Both travel involvement ($\beta = -0.09$, $p < .01$) and travel frequency ($\beta = -0.07$, $p < .1$) in the pandemic significantly moderate the effect of centrality of traumatic event on travel fear such that for high travel involvement and travel frequency, the positive relationship between event centrality and travel fear is reduced. Travel involvement and travel frequency during the pandemic help attenuate the travel fear related to traumatic events caused by the pandemic. There is no significant moderating effect between event centrality and ruminations. In summary, hypotheses 1, 2a, 3 and 4 are supported.

Table 1. The correlations of each construct

	TN	CES	TF	RI	RD	TI
TN	1.000					
CES	-.150**	1.000				
TF	-.277**	.427**	1.000			
RI	-.149**	.691**	.456**	1.000		
RD	-.114**	.729**	.431**	.824**	1.000	
TI	.216**	-0.007	-.226**	0.001	0.028	1.000

Note. CES, centrality of traumatic event; TF, travel fear; RI, intrusive rumination; RD, deliberate rumination; TI, travel involvement; TN, travel frequency. **. p < .01.

Table 2. Moderated mediation model

	β	SE	t	p	LLCI	ULCI
	mediator variable RI model					
constant	0.6668	0.4493	1.484	0.1382	-0.2152	1.5488
CES	1.3205	0.4464	2.9582	0.0032	0.4442	2.1967
TI	0.012	0.0266	0.4509	0.6522	-0.0403	0.0643
CES x TI	0.008	0.0269	0.2978	0.7659	-0.0448	0.0608
TN	-0.0532	0.0352	-1.5125	0.1308	-0.1222	0.0158
CES x TN	-0.05	0.0349	-1.4325	0.1524	-0.1185	0.0185

	mediator variable RD model					
constant	-0.1242	0.4265	-0.2913	0.7709	-0.9614	0.713
CES	0.5784	0.4237	1.3651	0.1726	-0.2533	1.4101
TI	0.0321	0.0253	1.2694	0.2047	-0.0175	0.0817
CES x TI	-0.0012	0.0255	-0.047	0.9625	-0.0513	0.0489
TN	0.0092	0.0334	0.2749	0.7835	-0.0563	0.0747
CES x TN	0.0115	0.0331	0.3481	0.7279	-0.0535	0.0766
	dependent variable model					
constant	2.5281	0.5081	4.9758	0	1.5307	3.5255
CES	1.0134	0.5062	2.0022	0.0456	0.0198	2.007
RI	0.2121	0.0528	4.0187	0.0001	0.1085	0.3157
RD	0.1294	0.0556	2.3279	0.0202	0.0203	0.2386
TI	-0.2081	0.03	-6.9246	0	-0.267	-0.1491
CES x TI	-0.0852	0.0303	-2.8109	0.0051	-0.1447	-0.0257
TN	-0.2003	0.0398	-5.0379	0	-0.2784	-0.1223
CES x TN	-0.067	0.0395	-1.6984	0.0898	-0.1445	0.0104

Note. CES, centrality of traumatic event; TF, travel fear; RI, intrusive rumination; RD, deliberate rumination; TI, travel involvement; TN, travel frequency. LLCI=lower limit confidence interval; ULCI=upper limit confidence interval.

Conclusion and Discussion

The findings of this study suggested that traumatic event centrality has a positive impact on travel fear. Travel involvement and travel frequency during the pandemic can make this relationship stronger. Intrusive rumination is suggested to mediate the relationship between traumatic event centrality and travel fear. This study echoes the conditioning theory. Considering the pandemic has been considered as a major traumatic stressor worldwide (Bridgland et al., 2021), the findings support that fear conditioning caused by the high centrality of traumatic event stimulates fear of unconditional stimulus. The strong mental influence triggered by the pandemic on highly-impacted people could stimulate their fear to travel. To our knowledge, this study is among the first to explore the impact of the pandemic as a traumatic stressor on travel behavior and provides a new account to explain why the pandemic will trigger anxiety about travel — fear conditioning. Besides, this study contributes to the literature of psychological impact of the pandemic on travel behavior. Travel-related mental constraints, such as travel anxiety and travel fear (Zenker et al., 2021; Zheng et al., 2021), have been constantly studied since the outbreak of pandemic, yet the impact of general mental health on travel behavior is less studied.

Furthermore, the findings show that travel involvement and travel frequency can attenuate the positive impact of traumatic event centrality and travel fear. Travel experiences (both quantity and quality) eases travel fear caused by general mental problems. This finding provides managerial implications on how to reduce the negative impact of mental health on travel behavior during and after the pandemic. Although the impact of the pandemic is unreversible, the tourism sector can provide opportunities to encourage people to travel more, such as free sampling promotion, and improve tourist experience during the pandemic to attenuate travel fear.

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