

# COVID-19 event strength, psychological safety, and avoidance coping behaviors for employees in the tourism industry

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## ABSTRACT

The impact of COVID-19 on the emotions or behaviors of employees in tourism enterprises would be worthwhile for investigation since COVID-19 has harmed not only people's health and lives but also most tourism enterprises. By identifying the effect of COVID-19 event strength on avoidance coping behaviors, the behaviors isolated from customers unlikely beneficial for tourism enterprises, we not only revealed that COVID-19 event strength indirectly affects avoidance coping behaviors through either the fear of external threat or psychological safety, but also disclosed that supervisor safety support would moderate the effect of psychological safety on such coping behaviors. We argue that understanding potential causes, such as the fear of external threat and psychological safety, and identifying possible solutions, like supervisor safety support, may be key factors for restarting tourism enterprises successfully under the severe impact of the COVID-19 pandemic.

## 1. Introduction

Given its person-to-person transmission (Rothan & Byrareddy, 2020), COVID-19 rapidly spreading globally becomes a pandemic (Shi et al., 2020), which caused travel and mobility bans, community lockdowns, and people to remain at home with devastating impacts on tourism and hospitality (Gössling et al., 2020; Kock et al., 2020). Thus, the issues on how to cope with the impacts of COVID-19 for tourism and hospitality have been got much attention. Abel et al. (2020) argued that most owners and managers of tourism enterprises would endeavor to discover how to adjust and modify the manner by which they conduct business in consideration of COVID-19. Bartsch et al. (2021) found that an effective means to maintain the work performance of employees in a virtual environment under the impacts of COVID-19 was to adopt either task- or relation-oriented leadership behavior. In short, the previous studies mainly focused on how to respond to COVID-19 from the enterprise perspective. However, due to reduced occupancy and closed accommodation (Park et al., 2020), operations in tourism and hospitality enterprises have considerably declined worldwide (Kreiner & Ram, 2020), resulting in massive job loss (Kaushal & Srivastava, 2021). **As a result, Employees afraid of being layoff off or nearly unemployed likely affect the operating performance of tourism and hospitality enterprises. As a result, it would be essential to shed**

## light on the issues of employees in such enterprises under the severe impact of COVID-19.

Notably, sadness and anxiety may be the main emotions experienced by employees (Park et al., 2020; Sah et al., 2020). Understanding changes in the psychological state and behavior response of employees may be crucial for enterprises facing the COVID-19 epidemic (Kock et al., 2020). However, the employees' response behaviors to the impacts of COVID-19 in the tourism and hospitality industry seem to have been rarely explored in relevant studies. Sigala (2020) indicated that COVID-19 tourism research should provide a deeper examination and understanding of the tourism stakeholders' behavioral, cognitive, emotional, and ideological actions as well as their reactions to the serious impact of COVID-19. In practice, many hotels served as isolation sites for suspected COVID-19-infected individuals due to decreasing room occupancy by tourists after the outbreak of the pandemic. However, many tourist attractions, including hotels, have provided free access for tourists, likely resulting in mass gatherings, which might disadvantage precautions against COVID-19. Therefore, employees of tourism enterprises might worry about providing face-to-face services for customers since some COVID-19-infected individuals may be asymptomatic. Previous studies have proved that worries and negative psychological states have a negative impact on performance (Frode et al., 2017; Jerry, 1977; Sklett et al., 2018; Stefan & David, 2013).

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Thus, since employees likely provide face-to-face service for customers in tourism and hospitality enterprises, it would be worthwhile to investigate the impact of the COVID-19 epidemic on the emotions and psychological state of such employees and their coping behaviors.

Based on the above information, this study employed event strength to measure the impact of COVID-19. Event strength (Morgeson et al., 2015) refers to the novelty (reflecting the degree to which an event differs from present and past actions and events), disruption (reflecting the subversion of routine activities of the event), and criticality (reflecting the extent that priority response by the organization was required and impact on the realization of organizational goals) of an event. Given the threat of COVID-19, fear of external threat (i.e., the uncertainty of employees regarding the response of their employer to external threats, including economic or industrial downswings, the threat of competitors, technological change, and mergers and acquisitions (Ashford et al., 1989; Schweiger & Denisi, 1991)) and psychological safety (i.e., an important psychological state that affects an individual's working motivation (May et al., 2004)) were used to reflect the emotional and psychological state of employees in tourism enterprises returning to work in China. Previous studies revealed that when employees perceive environmental pressures, they are likely to adopt avoidance coping behaviors (Wakim, 2014; Lyons et al., 2015). Avoidance coping behaviors are also widely employed as a response to stress from negative events (Holahan et al., 2005; Amponsah et al., 2020; Bartone et al., 2015; Hu & Cheng, 2010). Thus, the present study argued that employees may adopt avoidance coping behaviors (i.e., adopting the avoidance behavior for facing problems with perceived stress as the response (Long, 1990)) when facing emotional and psychological pressure.

Therefore, we endeavored to explore the impact of COVID-19 event strength on the emotions and psychological state of employees in tourism enterprises and their coping behaviors by addressing two concerns. Aside from exploring the impact of COVID-19 event strength on the psychological safety and fear of external threat of employees in tourism enterprises, we further investigated whether COVID-19 event strength would affect avoidance coping behaviors adopted through either psychological safety or fear of external threat (i.e., mediate concerns). Additionally, workers are at less risk if they have supervisor safety support (Yanar et al., 2019), which may reduce avoidance coping behavior. Therefore, by proposing supervisor safety support (i.e., the process of communication, motivation, and safety support by superiors that allow subordinates to perceive their superiors as emphasizing safety (Tucker et al., 2016)) as a moderating variable, we then investigated whether this variable would moderate the effect of either psychological safety or fear of external threat on avoidance coping behaviors (i.e., moderate concerns).

We argue that this study may contribute to the existing literature as follows. We aimed to reveal the impacts of COVID-19 event strength on emotions and behaviors of employees in tourism enterprises, especially the psychological safety of employees because of the severe impacts of COVID-19 on mental health (Brooks et al., 2020; Cao et al., 2020; Kang et al., 2020). A deeper understanding of the tourism stakeholders' emotions and actions to the serious impact of COVID-19 is relatively lacking (Sigala, 2020). To our knowledge, this study may be the first attempt to explore the impact of COVID-19 event strength on the psychological safety of employees in tourism enterprises returning to work; it may be beneficial to elucidate the emotions and behaviors of employees in tourism enterprises, and businesses in general, before and after the mitigation of COVID-19. We also disclosed that supervisor safety support may moderate the effect of psychological safety on avoidance coping behaviors. Given that avoidance coping behaviors may seldom occur for employees with psychological safety, we deduced that, if these employees have higher perceived supervisor safety support, avoidance coping behaviors may rarely be adopted by employees. These findings may be beneficial for tourism enterprises to restart their

business after the plague of COVID-19.

The rest of the paper proceeds as follows. Section 2 includes the relevant literature and research hypotheses. The data and methodology are introduced in Section 3. Empirical results and analyses are presented in Section 4. Section 5 provides concluding remarks.

## 2. Literature review and hypotheses

### 2.1. Event system theory and event strength

Event system theory emphasizes the essential attributes of events including event strength,<sup>1</sup> space,<sup>2</sup> and time<sup>3</sup> resulting in organizations likely impacted by events (Morgeson et al., 2015). Event system theory mainly concerns the effects of events on objects, implying that events may influence objects through their interaction with the external environment (Zhao & Ren, 2018, pp. 134–149). Event system theory and event strength have been widely employed in relevant studies related to both organizational and individual levels. For example, Morgeson and Derue (2006) and Morgeson (2005) employed the event system theory to investigate leadership, while Zellmer-Bruhn (2003), Bacharach and Bamberger (2007), and Koopmann et al. (2016) explored the impact of an emergency on team knowledge absorption, of the 9/11 terrorist attack on the emotions of firefighters, and events at work on employees' happiness, respectively.

The degree of influence might depend on event strength (Zhao & Ren, 2018, pp. 134–149) including the novelty, disruption, and criticality of the event. Novelty reflects the degree to which an event is different from current and past events, thus representing a new or unexpected phenomenon (Morgeson, 2005). Disruption concerns the degree to which an event changes the organizations and individuals (Morgeson & Derue, 2006). Finally, criticality reflects the degree to which an event is important or a priority for organizations and individuals (Morgeson & Derue, 2006; Morgeson et al., 2015).

As for COVID-19 event strength, COVID-19 itself is a disease caused by the novel coronavirus and differs from other viruses such as SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome). From the disruptive perspective, COVID-19 nearly temporarily changes all over the world, including causing individuals to stay at home, enterprises to shut down, and economies and cross-border exchanges to stagnate. The world seems to have been put "on hold" by COVID-19 (Ahmed & Memish, 2020, p. 101631). Effectively controlling the negative impact of COVID-19 has become critical for organizations and individuals because of the worldwide spread of the disease. This study, therefore, investigated the impact of COVID-19 event strength on the emotions and behaviors of employees in tourism enterprises, a topic that has been rarely explored comprehensively in the existing literature.

### 2.2. Stimuli-organism-response (SOR) model

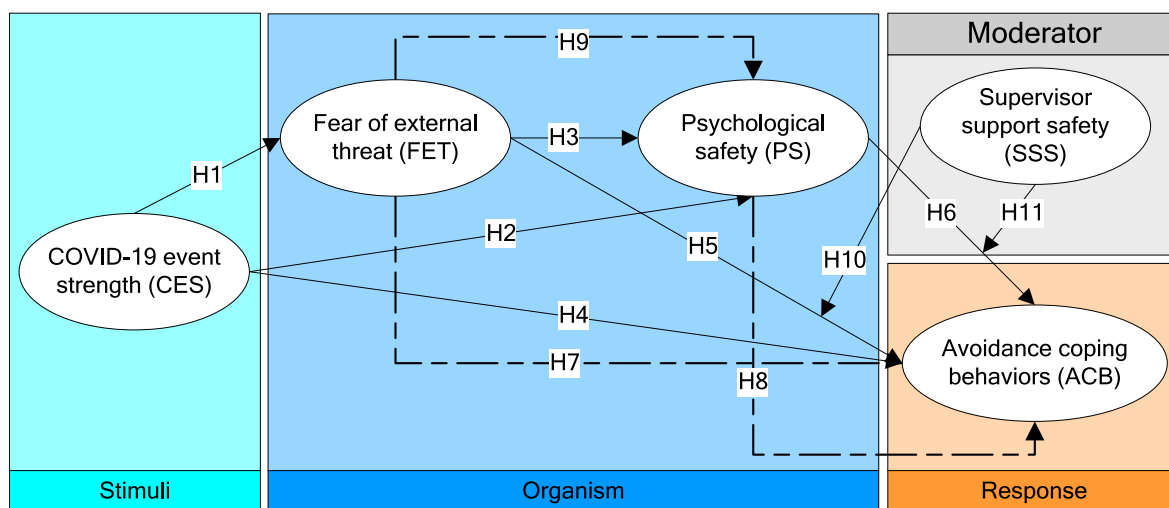
The research conceptual framework of this study (Fig. 1) is mainly based on the Stimulus-Organism-Response model (SOR model) proposed by Mehrabian and Russell (1974). The SOR model is widely employed in tourism studies (Rajaguru, 2013; Jani & Han, 2014; Kim et al., 2018) and implies that an environmental stimulus (S) elicits a cognitive and emotional reaction from an organism (O), thereby triggering the corresponding behavior response (R) (Björk et al., 2010; Kani et al., 2017).

Compared to previous studies, this study focused on the relationships among COVID-19 event strength, emotions and behaviors, such as fear of external threat and psychological safety, and avoidance coping

<sup>1</sup> Event strength includes the event's novelty, disruption, and criticality.

<sup>2</sup> Event space is where an event originates and how its effects spread throughout an organization.

<sup>3</sup> Event time refers to how long the event remains impactful and the evolution of the event strength.



Note: The dotted lines represent the mediating effects

Fig. 1. Research conceptual framework.

Note: The dotted lines represent the mediating effects.

behaviors since we argue that environmental stimulus (i.e., COVID-19 event strength treated as stimulus factor) may affect the behavior of employees in tourism enterprises (i.e., avoidance coping behaviors treated as a response factor) through the emotional reflection of the organism (i.e., fear of external threat and psychological safety treated as organism factors).<sup>4</sup> This study employed the SOR model for its conceptual framework to explain how these factors are connected. For this, we proposed several hypotheses (see Fig. 1).

The event system theory may explain why COVID-19 event strength caused the global change, so we treated COVID-19 event strength as the stimuli factor of this study. Here, organism referred to individuals' inner states from both cognitive and emotional perspectives (Manthiou et al., 2016). Finally, fear of external threat reflects the uncertainty of employees regarding their enterprise's reaction to external threats such as economic or industrial downswings, the threat of competitors, technological change, or mergers and acquisitions (Ashford et al., 1989; Lebel, 2016; Schweiger & Denisi, 1991).

Additionally, fear is an emotional state involving uncertainty regarding harmful threats or undesirable events (Frijda, 1986; Smith & Ellsworth, 1985), such as COVID-19. Therefore, we treated the fear of external threat as an organism factor in this study. Based on the above analysis and SOR model, we argue that COVID-19 event strength—considered an environmental stimulus in this study—may trigger negative emotions of employees in tourism enterprises. Consequently, we argue that employees in tourism enterprises may worry about their safety, jobs, and income since tourism enterprises remain in dilemmas due to the impact of COVID-19. We propose Hypotheses 1 (H1).

**H1.** COVID-19 event strength positively affects fear of the external threat among employees in tourism enterprises.

Furthermore, psychological safety indicates that individuals can express themselves and behave freely without fear of affecting their status, self-image, or career (Guchait et al., 2019; Kahn, 1990). This likely affects an individual's work motivation (May et al., 2004). Additionally, we argue that psychological safety may be regarded as a subjective feeling of an organism, so we consider psychological safety as another organism factor in this study.

<sup>4</sup> The event strength of COVID-19 is treated as the stimulus factor, while fear of external threat and psychological safety are treated as organism factors, and avoidance coping behaviors are treated as response factors.

According to the SOR model, environmental stimuli may cause changes in the state of the organism. Previous studies have also proved that external stimulus factors, such as forgiveness climate (Guchait et al., 2019) and leadership (Carmeli et al., 2014; Leroy et al., 2012), affect psychological safety. Given that enterprises' development and employees' careers may have been seriously impacted by COVID-19, we inferred that the psychological safety of employees in the tourism industry has likely changed. We propose Hypotheses 2 (H2).

**H2.** COVID-19 event strength negatively affects the psychological safety of employees in tourism enterprises.

Huang et al. (2013) suggest that if the fear of external threat exists in organizations, employees' behaviors and health may be negatively impacted (Ashford et al., 1989). Due to fear often generated from risk perception (Lu et al., 2013; Marianne et al., 2015; She et al., 2017), perceived insecurity may be created for individuals who fear the external threat (Puri, 1995; Trachik et al., 2018). Therefore, when employees in tourism enterprises experienced fear of external threat due to the COVID-19 epidemic, their perceived psychological safety may be influenced. We then propose Hypothesis 3 (H3).

**H3.** Fear of external threat may negatively influence the psychological safety of employees in tourism enterprises.

Avoidance coping behavior occurs when an individual facing stress and danger avoids taking action (Long, 1990). Koopmann et al. (2016) suggest that when employees experience negative work events, they often take higher levels of prevention measures, thereby resulting in avoidance coping behaviors (Holahan et al., 2005; Amponsah et al., 2020; Bartone et al., 2015; Hu & Cheng, 2010). Previous studies have also shown that environmental stimuli may directly generate behavior responses, including avoidance coping behavior. For example, Glotzbach et al. (2012) and Lau et al. (2010) argue that a virtual reality environment and facing the H1N1 epidemic, respectively, may generate avoidance behaviors. Therefore, we declare that employees in tourism enterprises may adopt avoidance coping behaviors while facing the serious impact of the COVID-19 epidemic as an environmental stimulus. We then propose Hypothesis 4 (H4).

**H4.** COVID-19 event strength positively affects avoidance coping behaviors adopted by employees in tourism enterprises.

### 2.3. Fear of external threat, psychological safety, and avoidance coping behaviors

Frijda (1986) found that emotion may trigger a person to act, described as a state of action readiness. The state of action readiness involves automatic or learned behavioral patterns following emotional experiences such as moving away from or toward a person or object (Frijda, 1989). For example, fear regarded as a discrete emotion is often accompanied by distinct patterns of action readiness (Lerner & Keltner, 2001) such as avoidance behavior or freezing in place (Shaver et al., 1987). According to the SOR model, the emotional reflection of organisms can generate behavior responses. We thus infer that fear of external threat, the emotion of the organism, may generate a behavior response.

As for the response factor, coping behaviors may be considered a response to perceived stress (Folkman & Lazarus, 1984). Coping behaviors, including avoidance, problem-solving, and problem-reappraisal (Long, 1990), are widely employed as a response to stress from negative events (Holahan et al., 2005; Amponsah et al., 2020; Bartone et al., 2015; Hu & Cheng, 2010). Shaver et al. (1987) argued that avoidance behavior is often accompanied by fear, while Long (1990) identified that, when people perceived stress, avoidance coping behavior is often employed in response. Therefore, we treated avoidance coping behaviors as the response factor in this study. We then inferred that, based on the SOR model, fear of external threat—the emotional reflection of the organism—may result in avoidance coping behaviors. We then propose Hypothesis 5 (H5).

**H5.** Employees in tourism enterprises with fear of external threat would employ avoidance coping behaviors

Psychological safety is a subjective feeling of an organism. Based on the SOR model, an organism factor may trigger responding behavior. For example, psychological safety, an organism factor, may elicit responses such as coping behaviors, including learning behaviors (Carmeli, 2007; Carmeli et al., 2009), employee involvement (Carmeli et al., 2010), voice behavior (Walumbwa & Schaubroeck, 2009), helping behavior (Guchait et al., 2015), organizational citizenship behavior (Iqbal et al., 2020), and job engagement (Basit, 2017). Greene et al. (2020) state that psychological safety increased infection prevention practices, while May et al. (2004) suggest that psychological safety affects the individual's work motivation. As such, relevant studies imply that psychological safety may be associated with various behaviors of employees.

However, under the severe impact of COVID-19, sadness and anxiety were the main emotions experienced (Park et al., 2020; Sah et al., 2020) and were accompanied by low psychological safety, thereby resulting in the decreased working motivation of employees. We thus suggest that, due to the COVID-19 pandemic, employees in tourism enterprises with a low level of psychological safety may adopt avoidance coping behaviors. We then propose Hypothesis 6 (H6).

**H6.** Employees in tourism enterprises with a low level of psychological safety may take avoidance coping behaviors.

### 2.4. Mediating role of fear of external threat and psychological safety

In the SOR model, the emotional reflection of an organism may play a mediating role in the organism's response. In this study, the environmental stimulus, emotional reflection, and behavioral response are COVID-19 event strength, fear of external threat and psychological safety, and avoidance coping behaviors, respectively. We then state that either fear of external threat or psychological safety may play a mediating role between COVID-19 event strength and avoidance coping behaviors.

According to previous studies, psychological safety has acted as a mediator between coworker upward voice (e.g., work environmental stimuli factor) and employee upward voice (e.g., employees responding behavior factor) (Subhakaran & Dyaram, 2018). In this study, aside from psychological safety, which is widely employed as a mediator (Carmeli

et al., 2014; Guchait et al., 2019), fear of external threat, which has been rarely studied in the existing literature, is also evaluated. As such, as per the SOR model, we explored whether either fear of external threat or psychological safety would play a mediating role between COVID-19 event strength and avoidance coping behaviors by proposing Hypothesis 7 (H7) and Hypothesis 8 (H8).

**H7.** Fear of external threat may mediate the relationship between COVID-19 event strength and avoidance coping behaviors adopted.

**H8.** Psychological safety may mediate the relationship between COVID-19 event strength and avoidance coping behaviors adopted.

Koopmann et al. (2016) illustrated that when employees experience negative events in their work, they would often be in a bad mood. For instance, firefighters in New York would generate negative emotions for the 9/11 terrorist attack (Bacharach & Bamberger, 2007). Given that fear is associated with risk perception (Marianne et al., 2015), people would not only feel insecure but also perceive risk when they experience fear from an external threat (Trachik et al., 2018). According to the SOR model, the external stimulus—COVID-19 event strength—may not only increase employees' fear of the external threat but also enhance employees' perceived risk. Therefore, we argue that COVID-19 event strength may affect psychological safety through fear of external threat. We then deduce that fear of external threat may play a mediating role between COVID-19 event strength and psychological safety by proposing Hypothesis 9 (H9).

**H9.** Fear of external threat may mediate the relationship between COVID-19 event strength and psychological safety.

### 2.5. Moderating role of supervisor safety support

Supervisor support safety refers to employees' perceived safety, including communication, encouragement, and other supporting safety behaviors from their supervisors (Christian et al., 2009). Supervisory safety support was associated with fewer employee injuries, a lower rate of safety violations (Hansez & Chmiel, 2010), and fewer hazardous work events (Turner et al., 2010). Mohammadi et al. (2020) argued that patients infected with the coronavirus may experience increased psychological safety if they receive comprehensive support and have their dignity respected. We then argue that considering the negative impact of COVID-19, supervisors must provide safety support for their employees in tourism enterprises since these employees with perceived safety and comfort may be essential for these enterprises.

We also suggest that, due to the negative impact of COVID-19, employees in tourism enterprises may have a higher perceived fear of external threat and lower perceived psychological safety, thereby resulting in avoidance coping behaviors. As such, we argue that supervisor support safety may lessen the pressure of these employees by decreasing perceived fear of an external threat and increasing perceived psychological safety, thus decreasing avoidance coping behavior adopted (Shea et al., 2018). We propose Hypothesis 10 (H10) and Hypothesis 11 (H11) and consider supervisor support safety as an essential moderator.

**H10.** Supervisor safety support moderates the relationship between fear of external threat and avoidance coping behaviors.

**H11.** Supervisor safety support moderates the relationship between psychological safety and avoidance coping behaviors.

## 3. Data and methodology employed

### 3.1. Data collection and sample

Due to the severe impact of COVID-19, the online survey (Li et al., 2020; Yun et al., 2020) used in this study focused on issues related to the perceived psychological safety and avoidance coping behaviors adopted

by employees of tourism enterprises. In this study, the questionnaire was mainly distributed through Wenjuanxing (<https://www.wjx.cn/>), a widely accepted survey website platform in China (Ning et al., 2020) that launched in 2006 and has issued and collected 99.83 million and 7.963 billion questionnaires and responses, respectively.

Because of COVID-19, the perception of employees, such as perceived risks in tourism enterprises, may be crucial in restarting enterprises. This study argues that obtaining more information about this may be beneficial for enterprises and authorities to restart their enterprises and the economy, respectively. To gain insight into the perception of employees, this study distributed the questionnaire from March 8 to 31, 2020. By mid-March, the COVID-19 epidemic had spread to 146 countries and created a devastating impact on airlines, cruises, and accommodations (Kreiner & Ram, 2020). Thus, we argued that it is an appropriate period to measure the perception of the employees in tourism enterprises returning to work of China.

However, because tourism enterprises returning to work were not conducting large-scale operations before the end of March, this study involved the Department of Culture and Tourism of several provinces (i. e., Fujian, Guizhou, Qinghai, Gansu, Ningxia, and Jilin provinces) to help us deliver the questionnaire link to tourism enterprises returning to work, including travel agencies, hotels, tourist attractions, airlines, exhibition enterprises, and other tourism-related enterprises. Specifically, we delivered the questionnaire link to the persons who were in charge of tourism enterprises in the department of culture and tourism; afterward, we asked them to aid us in collecting our data by inviting employees in these rework enterprises to fill out our questionnaire. By employing convenience sampling, 261 samples were obtained with effort because tourism enterprises returning to work were not operating on a large scale before the end of March. The demographic characteristics of the participants are shown in Table 1.

Table 1 illustrates that there were slightly more females (59%) than males (41%) and that most participants (60.54%) were aged 19–30 years, while 6.1%, 2.7%, and 0.8% were 46–60, under 18, and over 60 years old, respectively. Additionally, most (77%) were college or university graduates, while 6.5%, 2.7%, and 13.8% were in senior high school, junior high school and below, or post-graduate levels, respectively. Meanwhile, most participants' (30.7%) monthly income ranged from ¥ 3001–5000. Finally, the industries included in our samples were travel agencies (15.3%), hotels (28.8%), tourist attractions (27.6%), MICE enterprises (11.1%), airline enterprises (10.7%), and others (6.5%).

### 3.2. Measurement items

To measure the essential terms employed in this study—including COVID-19 event strength (CES), fear of external threat (FET), psychological safety (PS), avoidance coping behaviors (ACB), and supervisor support safety (SSS)—as shown in Fig. 1, we referred to existing validated and reliable multi-item scales. Event strength was measured using 11 items proposed by Morgeson et al. (2015), which included novelty

(four items, i.e. The manner of dealing with COVID-19 is clear), disruption (three items, i.e. COVID-19 has greatly impacted the long-term success of my organization), and criticality (four items, i.e. COVID-19 changes the way my organization routinely responds to emergencies). FET was measured by five items (i.e. I feel that the economic downturn would negatively impact my organization) formulated by Lebel (2016), while PS was measured using five items (i.e. When my organization reopens, I needed to be careful in my workplace) adopted by several studies (Carmeli, 2007; Guhait et al., 2015; Li & Yan, 2007). ACB was measured using 17 items employed (i.e. I will leave my work as soon as possible) by some studies (Holahan et al., 2005; Hu & Cheng, 2010; Long, 1990). Finally, SSS was measured by 10 items (i.e. The supervisor would hold regular meetings to communicate safety issues with employees) developed by Tucker et al. (2016). In this study, all were measured using a 7-point Likert-type scale, representing strongly disagree and strongly agree, respectively.

## 4. Results

### 4.1. Measurement model validation

These data were analyzed using Mplus 8.0 and Process 3.4. A tool for evaluating the succession of dependent relationships and verifying cause-and-effect relationships between multiple independent and dependent constructs (Hair et al., 2010)—the SEM technique—was employed using the two stages recommended by Anderson and Gerbing (1988). In the first stage, we used the measurement model to confirm whether the constructs and items adopted were valid and reliable by conducting confirmatory factor analysis (CFA). The second stage employed Process 3.4 in the analysis of the structural model and clarification of the causal relationships between the constructs, as well as the moderating effects (Hayes, 2013).

Common method variance is a systematic error variance among variables (Williams & Brown, 1994) and refers to a type of deviation that is caused by similarity in methods used to collect data (Hsiao et al., 2020). As per Podsakoff et al. (2003), we carried out exploratory factor analysis (EFA) for all the items using a rotation-free principal component analysis method. The results showed that the variance interpretation rate of the first factor extracted was 30.01% less than 50%, indicating that, since the common method bias is within an acceptable range (Hsiao et al., 2020), the results of this study were unlikely biased.

Accordingly, items C1; P5; S1–4 and S7; F4; and A2, A3, A7, A8, A10, and A13–A17 of COVID-19 event strength, PS, SSS, FET, and ACB, respectively, were eliminated with factor loads less than 0.5. Afterward, we validated the measure using CFA and justified that the model fit indices in the structural equation modeling met the acceptable criteria (Baumgartner & Homburg, 1996), as shown that  $\chi^2 = 679.089$  ( $df = 356$ ,  $\chi^2/df = 1.91$ ,  $p < 0.001$ ), RMSEA = 0.059 < 0.08, SRMR = 0.059 < 0.08, CFI = 0.941 > 0.9, and TLI = 0.933 > 0.9. In addition, the standardized factor loading of each item for the corresponding construct and each construct's average variance extracted (AVE) should both be higher

**Table 1**  
The demographic characteristics of the sample (N = 261).

Characteristics of respondents	N	%	Characteristics of respondents	N	%		
Gender	Male	107	41%	Monthly income	Less than ¥ 3000	54	20.7%
	Female	154	59%		¥ 3001–5000	87	33.3%
Age	Under 18	7	2.7%		¥ 5001–10000	80	30.7%
	19–30	158	60.54%	Over ¥ 10000	40	15.3%	
	31–45	78	29.89%	Type of enterprise	Travel agencies	40	15.3%
	46–60	16	6.1%		Hotels	75	28.8%
	Over 60	2	0.8%		Tourist attractions	72	27.6%
Education	Junior high school and below	7	2.7%		MICE enterprises	29	11.1%
	Senior high school	17	6.5%		Airline enterprises	28	10.7%
	College or university graduates	201	77.0%	Others	17	6.5%	
	Post-graduates	36	13.8%				

than 0.5 (Fornell & Larcker, 1981). We present the standardized factor loading of each item and the AVE in Tables 2 and 3.

While measuring the value of the AVE and composite reliability (CR), Table 2 shows that the AVEs of all dimensions and CR values of latent constructs were higher than 0.5 and 0.7, respectively (Nunnally, 1994). Additionally, the AVE was higher than the squared correlations between variables, indicating that the discriminative validity between variables was qualified. As such, we assert that our samples exhibited good construct validity and consistency.

4.2. Direct and mediating effect testing

As per the conceptual framework in Fig. 1, Table 4 supports H1 and H2 since COVID-19 event strength had positive and negative effects on FET ( $\beta = 0.1927, p < 0.01$ ) and PS ( $\beta = -0.1125, p < 0.05$ ), respectively. FET negatively affected PS ( $\beta = -0.3197, p < 0.001$ ), supporting H3. However, COVID-19 event strength did not directly affect avoidance ( $p > 0.05$ ); H4 is not supported. FET had a positive effect on ACB ( $\beta = 0.3053, p < 0.001$ ), supporting H5. Additionally, PS negatively affected ACB ( $\beta = -0.5953, p < 0.001$ ), supporting H6.

As for mediating effects, FET would be considered the mediator between COVID-19 event strength and ACB if the p-value of the interaction, COVID-19 event strength by FET, were less than 0.05. Referring to the measurement of indirect effects (Hayes & Preacher, 2014; Montoya & Hayes, 2017), COVID-19 event strength had a significantly positive indirect effect on ACB through either FET ( $\beta = 0.0588, p < 0.001$ ) or PS ( $\beta = 0.1036, p < 0.001$ ), indicating that both H7 and H8 are supported. FET was also a mediator between COVID-19 event strength and PS ( $\beta = -0.0616, p < 0.001$ ), supporting H9 and implying that COVID-19 had a negative indirect effect on PS through FET.

4.3. Moderated mediation effect

Table 5 presents the moderating effect testing between the organism factors (FET and PS) and response factor (ACB). This revealed that COVID-19 event strength had significantly positive and negative effects on FET ( $\beta = 0.1927, p < 0.01$ ) in Model 1 and PS ( $\beta = -0.1741, p < 0.01$ ) in Model 2, respectively. However, Model 3 illustrated that COVID-19 event strength did not directly affect ACB.

The interaction term, FET by supervisor safety support, insignificantly affected ACB ( $\beta = 0.0448, p > 0.05$ ), implying that supervisor safety support did not influence the negative psychological effect on ACB; this does not support H10. We deduced that employees with perceived supervisor safety support would adopt ACB. Furthermore, the interaction term, PS by supervisor safety support, negatively affected ACB ( $\beta = -0.1392, p < 0.01$ ), indicating that supervisor safety support significantly decreased the negative psychological effects on ACB, supporting H11. We may infer that, if these employees have perceived supervisor safety support, employing ACB may decline significantly.

To illustrate that supervisor support may moderate the negative effect of PS on ACB, we plotted predicted ACB against higher or lower supervisor safety support (Fig. 2) as moderator variables, with 1 standard deviation (SD) below and above the mean, indicating the lower and higher levels, respectively. Fig. 2 shows that, with a high level of supervisor safety support, perceived PS might significantly decrease the ACB employed, thereby resulting in ACB being seldom employed.

In sum, in Fig. 3, we argue that our proposed hypotheses (see Fig. 1) would be supported by our results.

5. Concluding remarks

5.1. Conclusion and discussion

During the SARS and H1N1 pandemics, people experienced panic resulting in negative psychological responses and avoidance behavior (Lau et al., 2010). In this study, we explored the impact of COVID-19 on

Table 2  
Confirmatory factor analysis: Items and factor loadings.

Dimensions	Items	Standardized loading	AVE	CR
COVID-19 Event Strength (CES) Cronbach's Value 0.884	The manner of dealing with COVID-19 is clear.	0.861	0.658	0.950
	There are clear procedures for dealing with COVID-19.	0.924		
	My organization has mature procedures and measures to deal with COVID-19.	0.815		
	My organization has guidelines to follow regarding the COVID-19 pandemic.	0.810		
	COVID-19 has greatly impacted the long-term success of my organization.	0.538		
	COVID-19 is the first considerable event of my organization.	0.913		
	COVID-19 is an important event for my organization.	0.885		
	COVID-19 causes my organization to pause after thinking about how to deal with it.	0.789		
	COVID-19 changes the way my organization routinely responds to emergencies.	0.862		
	COVID-19 has caused my organization to change its previous operations.	0.628		
Psychological Safety (PS) Cronbach's Value 0.864	When my organization reopens, I needed to be careful in my workplace.	0.694	0.554	0.831
	When my organization reworks, there is someone in my workplace who causes my efforts to go down the drain.	0.785		
	When my organization reworks, my work environment will be full of potential threats.	0.878		
	When my organization reworks, the consequences of my colleagues' mistakes will be very serious.	0.779		
Supervisor support safety (SSS) Cronbach's Value 0.957	The supervisor would hold regular meetings to communicate safety issues with employees.	0.831	0.619	0.866
	The supervisor's concern for safety is demonstrated by the development of standard work practices and procedures.	0.916		
	The supervisor refuses to ignore safety rules when our work falls behind the schedule.	0.921		
	The supervisor insists we should wear	0.932		

(continued on next page)

Table 2 (continued)

Dimensions	Items	Standardized loading	AVE	CR
Fear of External Threat (FET) Cronbach's Value 0.827	personal protective equipment.			
	The supervisor ensures we have the proper tools and equipment to finish our jobs safely.	0.932		
	I feel that the economic downturn would negatively impact my organization.	0.676	0.670	0.923
	I feel that my organization would experience a decline in sales and revenue.	0.777		
	I feel that mass layoffs will occur in my organization.	0.687		
	I feel that the tourism industry downturn will negatively impact my organization.	0.826		
	I will leave my work as soon as possible.	0.752	0.823	0.959
Avoidance coping behaviors (ACB) Cronbach's Value 0.914	I have bad luck along with fate.	0.827		
	I will sleep more than usual.	0.904		
	I wish that I could change what happened or how I felt.	0.88		
	I wish that the situation would go away or somehow be over soon.	0.641		
	I have fantasies or wishes about how things might turn out.	0.875		

the emotions and behavior of employees in tourism enterprises since the negative impact of COVID-19 may be more severe than those of SARS and H1N1.

By distributing an online questionnaire survey to employees from various tourism enterprises, we aimed to identify the effect of COVID-19 event strength on avoidance coping behaviors, with FET or PS as mediating variables and supervisor safety support as a moderating variable. Besides identifying whether COVID-19 event strength would directly affect FET, PS, or avoidance coping strategies, we also explored whether COVID-19 would indirectly affect PS through FET. Given that the above-mentioned issues (see Fig. 1) have rarely been comprehensively evaluated, we tested the proposed hypotheses illustrated in Section 2 and discovered several conclusions as follows.

First, we discovered that COVID-19 event strength had significant positive and negative impacts on FET and PS, respectively; this is consistent with negative emotions among firefighters after the 9/11 attack (Bacharach & Bamberger, 2007) as well as the worry and negative psychological response due to the SARS and H1N1 pandemics (Lau et al.,

2010). Therefore, we inferred that the outbreak of the COVID-19 epidemic may result in fear and reduced PS for employees in tourism enterprises, despite the impact of COVID-19 being seemingly controlled in China.

Second, we learned that FET negatively affects perceived PS for employees in tourism enterprises. Due to the severe impact of COVID-19 on the economy and trade (Lai et al., 2020; Lee et al., 2020), many firms, especially small and medium enterprises, closed or went bankrupt. However, regarding the number of employees and operating revenue, most tourism firms classified as SMEs (Schaffer, 2014; Styvén & Wallström, 2017) may not handle external shocks well. Furthermore, because the reception for tourists across provinces and other countries unpermitted by the authority in China, many tourism enterprises are operating at about 30% of their maximum tourist capacity. Therefore, employees' fear of being laid off due to the dismal state of the tourism industry may reduce their perceived PS. Fear generates risk perception and creates insecurity (Marianne et al., 2015) so people might have perceived insecurity while fearing an external threat (Trachik et al., 2018). For example, when employees commit mistakes, they might not express themselves freely or share with their colleagues since they fear being endangered (Guchait et al., 2014). Employees may then worry about the sustainability and profitability of their working companies because of the serious impact of COVID-19. Consequently, employees with fear of an external threat might not prefer to express themselves freely due to reduced perceived PS.

Third, ACB was revealed to be adopted for employees with FET instead of perceived PS. Fear is often accompanied by avoidance behavior (Shaver et al., 1987), as has been proved in the relevant studies (Glottbach et al., 2012; Rattel et al., 2017; Sartor-Glittenberg et al., 2018); this study confirmed that employees with higher FET may adopt ACB. Conversely, employees with perceived PS may experience positive effects, such as improved service recovery performance (Guchait et al., 2015, 2019), advanced learning behaviors (Carmeli, 2007; Carmeli et al., 2009), employee involvement (Carmeli et al., 2010), voice behavior (Walumbwa & Schaubroeck, 2009), and helping behavior (Guchait et al., 2015). Therefore, employees with a high level of perceived PS might not adopt ACB.

Fourth, this study revealed that COVID-19 event strength indirectly rather than directly affected ACB through two essential mediators: FET and PS. We inferred that, due to the global effects of the highly contagious COVID-19 epidemic, employees may change their behaviors and emotions, resulting in increased fear of this external threat and decreased perceived PS, thereby adopting ACB. As such, we disclosed that COVID-19 event strength indirectly influences ACB via the mediating roles of FET and PS; this is valuable since FET has seldom been discussed in the existing literature.

Fifth, we suggested supervisor safety support as a moderator variable since this may be essential in restarting the economy. This study confirmed that supervisor safety support may play a moderator role between perceived PS and ACB. Supervisors who proactively identify problems before they occur may have a meaningful impact on injury prevention, thereby resulting in positive safety outcomes (Zohar & Luria, 2005). Additionally, supervisor safety support is regarded as an important driver of improved safety conditions and reduced injuries

Table 3  
Descriptive statistics and associated measures.

Dimension	M	SD	CES	FET	PS	ACB	SSS
CES	4.45	0.45	0.8111				
FET	5.11	1.33	0.203**	0.744			
PS	4.16	1.46	-0.183**	-0.360**	0.787		
ACB	2.95	1.56	0.088	0.330**	-0.597**	0.819	
SSS	5.53	1.22	-0.135*	0.015	-0.004	-0.067	0.907

Note: \*\*p < 0.01, \*p < 0.05. CES = COVID-19 Event Strength, FET = Fear of External Threat, PS = Psychological Safety, ACB = Avoidance coping behaviors, SSS = Supervisor Support Safety, M = Mean, SD = Standard Deviation, CR = Composite Reliability, and AVE = Average Variance Extracted. Correlations are shown below the diagonal. The diagonal represents the discriminant validity.

**Table 4**  
Standardized parameter estimates for the structural model and hypothesis testing.

Paths	Direct effect	Indirect effect	Total effect	Hypotheses	Model
CES→FET	0.1927***			H1: supported	
CES→ACB	0.0149			ACB	
FET→ACB	0.3053***			FET	
CES→FET→ACB		0.0588***	0.0738	CES	
CES→PS	-0.1741**			H4: not supported	
CES→ACB	-0.0298			H5: supported	
PS→ACB	-0.5953***			H7: supported	
CES→PS→ACB		0.1036***	0.0738	H2: supported	
CES→FET	0.1927**			ACB	
CES→PS	-0.1125*			PS	
FET→PS	-0.3197***			CES	
CES→FET→PS		-0.0616***	-0.1741**	H4: not supported	
				H6: supported	
				H8: supported	
				H1: supported	
				PS	
				FET	
				CES	
				H2: supported	
				H3: supported	
				H9: supported	

Notes: CES = COVID-19 Event Strength, FET = Fear of External Threat, PS = Psychological Safety, ACB = Avoidance coping behaviors. \*\*\*p < 0.001, \*\*p < 0.01, and \* p < 0.05.

**Table 5**  
Moderated effects of supervisor safety support.

Model	Model 1 (FET)			Model 2 (PS)			Model 3 (ACB)		
	β	S.E.	p	β	S.E.	p	β	S.E.	p
Constant	0.4179	0.5533	0.4504	-1.9478	0.5133	0.0004	-0.3927	0.4560	0.3900
CES	0.1927	0.0610	0.0018	-0.1741	0.0574	0.0038	-0.0567	0.0504	0.2617
FET							0.1013	0.0536	0.0599
PS							-0.5216	0.0522	0.0000
SSS							-0.0557	0.0510	0.2756
FET*SSS							0.0448	0.0476	0.3474
PS*SSS							-0.1392	0.0498	0.0056
Gender	-0.2031	0.1266	0.1100	0.4192	0.1175	0.0008	-0.1340	0.1032	0.1955
Age	0.0223	0.1821	0.9025	0.1767	0.1682	0.3208	0.1425	0.1481	0.3369
Job	-0.0509	0.0038	0.1330	0.0077	0.0313	0.8153	-0.0208	0.0276	0.4514
Education	0.0238	0.1111	0.8303	0.1966	0.1026	0.0709	0.1666	0.0892	0.0630
Income	-0.0113	0.0648	0.8620	0.1235	0.0598	0.0517	-0.0473	0.0537	0.3797
R	0.2490			0.4511			0.6481		
R <sup>2</sup>	0.0620			0.2035			0.4201		
F (P)	2.7972*			0.2329***			16.3957***		

Note: CES = COVID-19 Event Strength, FET = Fear of External Threat, PS = Psychological Safety, ACB = Avoidance coping behaviors, SSS = Supervisor Support Safety. \*\*\*p < 0.001, \*\*p < 0.01, and \* p < 0.05.

(Yanar et al., 2019). Furthermore, supervisory support safety was proved to be associated with positive effects, including lower safety violations (Hansez & Chmiel, 2010), fewer hazardous work events (Turner et al., 2010), and better safety performance (Neal & Griffin, 2006; Nahrgang et al., 2011; Snyder et al., 2011; Clarke, 2013); this might explain why supervisor safety support moderated the negative effect of lower perceived PS on ACB. That is, if employees in tourism enterprises have perceived supervisor safety support, they may considerably decrease ACB adopted, thus proving that supervisor safety support plays a moderator role, as in this study, instead of a mediator role, as in previous studies (Snyder et al., 2011; Turner et al., 2010).

5.2. Theoretical implications

The COVID-19 pandemic has resulted in deteriorated mental health (Buckley & Westaway, 2020), including increased sadness and anxiety, of employees in the hospitality and tourism industry (Park et al., 2020). Sigala (2020) stated that COVID-19 tourism research should provide a deeper examination and understanding of the tourism stakeholders' behavioral, cognitive, emotional, and ideological actions and reactions

under the serious impact of COVID-19. Therefore, we assert that this study may contribute to the existing COVID-19 tourism literature by exploring the effect of COVID-19 event strength on ACB by incorporating FET or PS as mediating variables and supervisor safety support as a moderating variable. This study revealed the cognitive, emotional, and behavioral impact of COVID-19 on employees rather than stakeholders of tourism enterprises returning to work. Furthermore, this study provided insight regarding rarely explored topics, such as the perceptions (i.e., FET and PS) and responses (i.e. ACB) of employees—as well as the support safety of supervisors—of tourism enterprises returning to work considering the severe impact of COVID-19.

In this study, we revealed that COVID-19 event strength had positive and negative effects on FET and PS, respectively. In addition, we not only disclosed that COVID-19 event strength indirectly affects ACB through the mediators FET and PS, but also illustrated that supervisor safety support can moderate the effect of PS on ACB. We argue that these results may enrich the existing literature through the following relevant implications.

On the one hand, although numerous studies have examined the impact of COVID-19 on mental health and psychological state (Cao



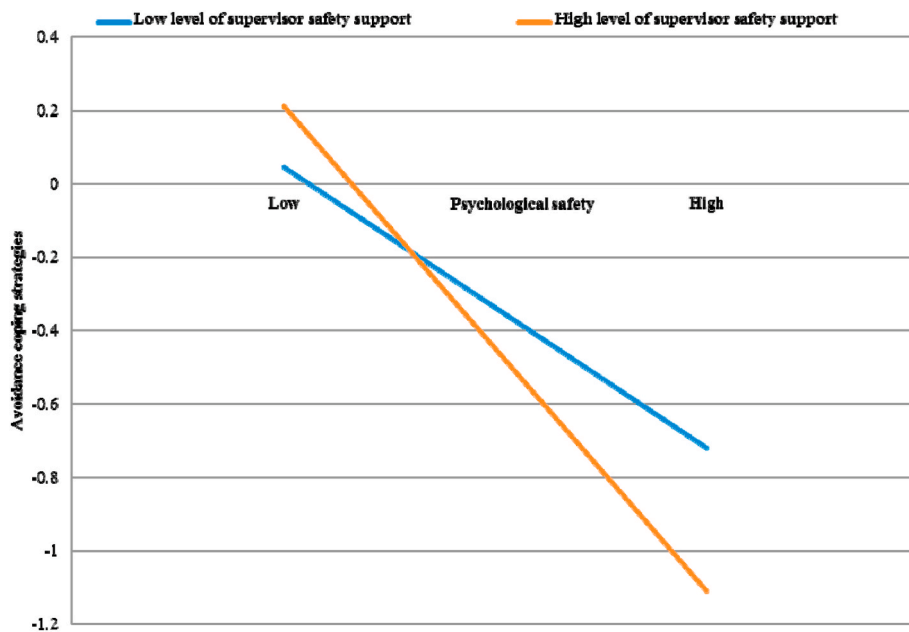
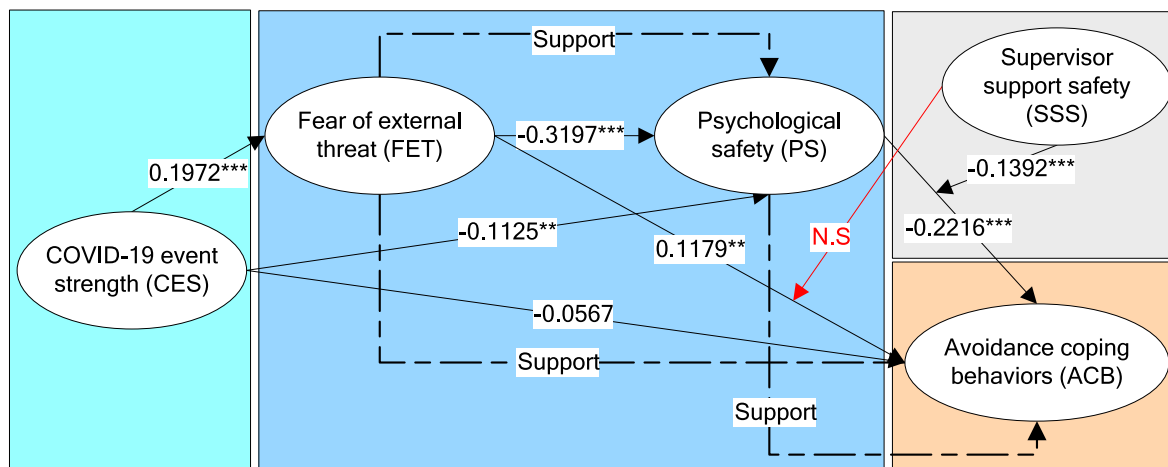


Fig. 2. Moderating effect of supervisor safety support.



Note: The dotted lines represent the mediating effects.

Fig. 3. Results of the model.

Note: The dotted lines represent the mediating effects.

et al., 2020; Liu et al., 2020), this study investigated the impact of COVID-19 event strength on both the behavior and emotions of employees in tourism enterprises. To our knowledge, this study is possibly the first attempt to examine the impact of COVID-19 on employees in tourism enterprises returning to work by revealing the negative impact of COVID-19, such as increased FET and decreased perceived PS among these employees. Due to the impact of COVID-19, alternative job opportunities are limited for many industries, thus increasing FET. Further studies should explore the physical and psychological impact of COVID-19 on employees, especially those who provide face-to-face services, in tourism enterprises.

On the other hand, this study revealed that COVID-19 event strength may affect ACB for employees in tourism enterprises via FET or perceived PS. As such, it may be beneficial for enterprises to understand how to manage the negative effects of COVID-19 on their employees. Moreover, aside from classifying and revealing the negative impact of COVID-19 on these employees, we argue that it would be relevant for

future studies to decipher the mechanisms regarding COVID-19's effects on these employees.

### 5.3. Managerial and practical implications

By identifying the effect of COVID-19 event strength on avoidance coping behaviors in this study, we not only revealed that COVID-19 event strength indirectly affects avoidance coping behaviors through either the fear of external threat or psychological safety, but also disclosed that supervisor safety support would moderate the effect of psychological safety on such coping behaviors. We state that this study would have the following managerial/practical implications.

As for managerial implication in terms of the relevance of our findings to tourism management, we argue that understanding potential causes, such as the fear of external threat and psychological safety, and identifying possible solutions, like supervisor safety support, would be rather essential for tourism management, especially for staff

management of tourism enterprises since tourism enterprises understanding the causes and finding the solutions would be beneficial for restarting their enterprises successfully under the severe impact of the COVID-19 pandemic.

Regarding practical implications, we then provide the following practical suggestions and recommendations for managing tourism employees in practice based on our findings. First, supervisors in tourism enterprises should be mindful of employees' emotions to prevent negative emotions from spreading throughout the workplace. In particular, trying to give employees a clear understanding of COVID-19 may reduce their fear since fear often comes from ignorance. Second, we recommend that managers should endeavor to reduce negative emotions between employees through many aspects such as support, learning, skill training, etc. Third, tourism enterprises should provide a comfortable working atmosphere since employees with positive emotions may facilitate the creation of important skills and resources for enterprises (Sheldon & King, 2001). We argue that the above concerns would be considered prescriptive and actionable to enhance operational outcomes since employee comfort and satisfaction would benefit the operational and organizational performance of enterprises (Mafini & Pooe, 2013).

In addition, due to the moderating effect of supervisor safety support with declining the negative effect of psychological safety on avoidance coping behaviors, we suggest that supervisors of tourism enterprises should endeavor to provide safety and psychological support for employees resulting from the negative impact of COVID-19 on employees. For example, supervisors should communicate safety guidelines frequently, develop standard work practices and procedures with a safety concern, prohibit employees from ignoring safety rules, insist employees wear protective equipment, ensure employees are equipped with the proper equipment to finish their job safely, pay attention to safety management in case of emergencies, and provide all-round safety support for employees; all of these would be prescriptive and actionable suggestions for enhancing the operational performance of these enterprises because employee comfort and satisfaction would also benefit operational and organizational performance (Mafini & Pooe, 2013).

#### 5.4. Limitation and further research

This study employed event system theory and the SOR model to reveal the impact of the strength of an event (i.e., COVID-19 event strength) on the emotions (i.e., FET and PS) and responding behavior (i.e., avoidance coping behavior) of employees of tourism enterprises. We also confirmed that supervisor safety support would moderate the effects of PS on ACB. However, instead of exploring the impact of event time or event space on individuals or organizations (Morgeson et al., 2015; Lu et al., 2019), this study was mainly concerned with event strength without concerning event time and event space, which would be the limitation of this study. Given that Sigala (2020) argued that the impact of COVID-19 on tourism will be uneven in space and time, the impact of COVID-19 event time or event space on employees in rework enterprises or general enterprises should be studied comprehensively in the future. Additionally, exploring the impact of a series of national policies on job security due to the impact of COVID-19 may warrant further research. COVID-19 has also limited alternative job opportunities, thus increasing FET. Therefore, investigating the moderating effect of alternative job opportunities may also warrant further research.

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#### Availability of data and materials

The datasets used and/or analyzed during the current study are available from the first author on reasonable request at 1598030168

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#### Declaration of competing interest

The authors declare that they have no competing interests.

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