**Hotel employee resilience during a crisis: Conceptual and scale development**

**Abstract**

This research aims to address the lack of research on hotel employee resilience during a crisis (HERC) and the absence of a measurement scale to assess it. A mixed-method approach was used to conceptualize HERC, identify its dimensions, and build a measurement scale. In Study 1, an online survey of 69 employees from upscale hotels was conducted, revealing a five-factor HERC model comprising resistance, adaptability, cooperation, restoration, and thriving. Study 2 developed preliminary measurement items for HERC, which were refined through exploratory factor analysis (EFA). Study 3 conducted another round of surveys and used a confirmatory factor analysis (CFA) to verify the factors generated from the second study. This research provides a comprehensive five-factor model of employee resilience during a crisis and a corresponding measurement scale, offering a theoretical foundation for hotel managers to develop effective strategies to manage crises.

**Keywords:** Resilience; five-factor model; crisis management; scale development; COVID-19

## Introduction

The hospitality industry is vulnerable to safety concerns, crises resulting from political upheaval, natural disasters, and terrorism, which can threaten daily operations and survival (Pizam & Mansfeld, 1996). The COVID-19 pandemic had a enormous impact worldwide from 2019 to 2022 and disrupted the hotel industry's safe operations, profitability, and sustainability (Zhang, Zhang, & Liu, 2020). To adapt to risks, overcome disruption, return to normal, and continue to grow and develop, it is essential for hotels and their employees to build greater crisis resilience (Ong et al., 2006; Zhu, Zhao, & Zhou, 2019). More resilient employees successfully deal with risk and adversity, and resilience has an impact on job security, job engagement, service quality, creativity, and turnover (Aguiar-Quintana, et al., 2021; Xie, Zhang, Chen, & Morrison, 2023). In addition, resilient staff and organizations have become strategic tools for hotels to limit crisis damage, survive, obtain competitive advantages, and recover and develop from crises. Therefore, motivating and promoting resilience during a hotel crisis is of theoretical and practical value.

Meyer (1982) described how organizations and employees, through enhanced resilience, flexibly adapt to multiple adversities and achieve prosperity. The hospitality industry is currently recognized as a high-risk and labor-intensive sector (Xie et al., 2020), where hotel employees are engaged in physically and mentally demanding tasks, while also striving to display appropriate emotions that enhance service quality through emotional labor (Chen, Chang, & Wang, 2019). Since resilience can enhance hotel employees' abilities to deal with stressful conditions and recover from multiple adversities and thus resilience has attracted increasing attention in tourism research. The analysis of the ability of hotel workers to cope

with difficult situations has been conducted in various scenarios, such as abusive supervision (Dai, Dai, Zhuang, & Huan, 2019), customer mistreatment (Yang, Lu, & Huang, 2020), and job stress (Khliefat, Chen, Ayoun, & Eyoun, 2021). The concept of hotel employee resilience during crises has been widely researched in the context of various types of crises such as terrorist attacks (Saad & Elshaer, 2020), natural disasters (Prayag et al., 2020), and pandemics (Aguiar-Quintana et al., 2021). However, previous studies have mainly relied on generic measures of employee resilience that are designed for non-crisis situations, failing to capture the specific and dynamic responses of employees to crises. Employees' resilience response strategies to daily adversity (e.g., service failure) and major crises (e.g., COVID-19, natural disasters) are different (Fey & Kock, 2022; Xie et al., 2023), particularly for employees in crisis-sensitive industries such as hotels. The occurrence, development, responses, and management of crises are dynamic. To achieve effective response and rapid recovery, hotels and employees must adopt tailored resilience responses for every crisis stage (Hao et al., 2020; Lombardi et al., 2021; Xie et al., 2023). Prior research has mainly focused on the resilience traits and qualities of hotel employees in daily adverse situations rather than their dynamic response abilities (Aguiar-Quintana et al., 2021; Dai et al., 2019; Yang et al., 2022). Given the growing attention to employee resilience during crises, there is a need for a measurement scale that reflects dynamic responses to crises. The main contribution of this research is the conceptualization of HERC and the development of a valid measurement scale.

There are three critical gaps in the research on hotel employee resilience. The conceptualization of hotel employee resilience needs more exploration and empirical

investigation. Companies, including hotel businesses, are confronted by a growing array of crises that pose complex and unique challenges, and have disastrous negative impacts on various service industries (Zhang et al., 2020). There is urgency in seeking solutions that allow employees to grow and develop when encountering adversity. One of the solutions is in enhancing employee resilience, which can augment performance and well-being (Hu, Zhang, & Wang, 2015; Shin, Taylor, & Seo, 2012), as well as help organizations reduce shocks, resist pressures, and achieve prosperity, thereby becoming a decisive factor in achieving sustainability in crises or multiple adverse situations (Zhu, Zhao, & Zhou, 2019; Zhang, Xie, Wang, Morrison, & Coca-Stefaniak, 2020). Therefore, hotels must promote staff resilience during crises and adversity. However, the appropriate empirical investigations are limited, and the connotation of hotel employee resilience needs more in-depth exploration (Prayag, 2017). The dimensions and a measurement scale for the resilience of hotel employees during major crises have also not been developed. Crises significantly influence the hospitality industry and impact hotel employees' perceptions, attitudes, and behaviors (Okumus & Karamustafa, 2005). Adapting and responding to adverse situations, including stress, trauma, failure, frustration, and challenges builds resilience. With greater resilience, employees can deal with crises and overcome adversity, while restoring stability and continuing their development and growth (Gillespie et al., 2007; Xie et al., 2023). Thus, it is necessary to identify the dimensions and a scale to measure hotel employee resilience. In addition, disagreements exist about measuring employee resilience. The current employee resilience scales mainly include trait and capacity resilience scales (Connor & Davidson, 2003; Näswall, Kuntz, Hodliffe, & Malinen, 2013; Yu, Zhang, Yu, & Zhang, 2007). Employee resilience

measurement models are inconsistent, making it challenging to comprehend the characteristics of employee resilience fully (Zhang et al., 2020). Different measurement approaches for employee resilience are proposed, including non-independent (within psychological capital), independent, multidimensional, and context-specific. The resulting measurement scales have assessed employee resilience in specific contexts and occupations (Dai, Zhuang, & Huan, 2019; Luthans et al., 2007; London & Noe, 1997; Saad & Elshaer, 2020). However, their application must often be revised and adjusted due to different situations and contexts. Also, the existing employee resilience measures lag behind theory development and do not fully capture the dynamics of this construct (Nguyen et al., 2016; McLarnon & Rothstein, 2013). Thus, scale development for employee resilience with a process-oriented perspective will assist in informing this debate.

This research aimed to achieve two objectives: (1) to specify the dimensions of HERC, and (2) to build a measurement scale for HERC by conducting a series of surveys. This research proposes a dimensional structure and measurement scale for hotel employee crisis resilience, which serves as a practical tool for hotels to assess, intervene, and promote employee resilience. Furthermore, it offers a theoretical foundation for developing effective crisis response strategies in the hotel industry.

## Literature review

### *Crisis management and resilience*

A crisis in hospitality is an unpredictable event that disrupts the normal operations of hotels (Xie et al., 2022). The management of crises encompasses the actions and strategies

undertaken by corporations to prevent, evaluate, deal with, and resolve the crisis events, revert back to normal conditions, and strive to eliminate or minimize any harm caused(Bullock, Haddow, & Coppola, 2017). Fink (1986) proposed a crisis lifecycle theory with prodromal, acute, chronic, and resolution stages. Hotel corporations need to develop tailored responses and strategies for each stage. Faulkner (2001) proposed a framework for the management of tourism disasters that involves various stages, including preparedness before the event, early warning signs (prodromal stage), emergency response, intermediate actions, recovery efforts, and the final resolution of the situation. Recently, disaster management strategies were employed to find out the responses of tourism enterprises to a major crisis like the outbreak of COVID-19. Hao, Xiao, and Chon (2020) created a framework for managing COVID-19 that included phases, principles, and strategies aimed at combating the pandemic. Therefore, tourism crisis management involves prevention, planning, response, recovery, and learning.

Resilience, meaning “to bounce back” or “to leap back”, is the ability of a business to survive and recover quickly from challenging conditions (Hu, Zhang, & Wang, 2015). Resilience has attracted attention in several disciplines, including ecology, engineering, geography, physics, psychopathology, and psychology (Xie et al., 2023; Zhu et al., 2019). However, it has yet to have a consistent conceptualization. Several researchers have prepared concept analyses of resilience from the aspects of antecedents, defining attributes, and consequences, and obtained somewhat different results. The antecedents of resilience have been identified as hardships, traumatic experiences, cognitive capacity, and a practical outlook; while characteristics such as self-confidence, optimism, and coping skills have also

been identified. The outcomes of resilience include consolidation, regulation, adaptation, and development (Gillespie et al., 2007). Niitsu's et al. (2017) suggested that the antecedents of resilience were traumatic events; the attributes were social support, ego-resiliency, emotional regulation, and heredity; and the outcomes s were positive adaptation and psychopathological symptoms. Thus resilience is generated from stress, trauma, crises, challenge, and adversity and reveals the psychological strategies by which individuals recover and grow in these situations. Resilience within positive psychology is viewed as a resource and individual potential with development value and has received increasing attention (Xie, Zhang, Chen, & Morrison, 2023). Resilience protects individual mental health, helping people mitigate the harmful effects of adversity and crisis and ultimately promoting well-being (Paredes et al., 2021; Prayag, Spector, Orchiston, & Chowdhury, 2020; Rasheed, Fatima, & Tariq, 2022; Vijayalakshmi et al., 2023).

The two concepts of resilience and crisis management have a natural connection. Resilience is derived from crisis or adversity, which helps firms identify and cope with the challenges of uncertain environments, promoting sustainable development (Becken, 2013). Prayag (2017) argued that crisis management and resilience are linked. Resilience offers a complementary perspective to crisis management for understanding how companies cope with adversity. Steen and Morsut (2020) constructed a framework for crisis management including resilience ability that was comprised of anticipating, monitoring, responding, and learning). They highlighted resilience's critical role in crisis response and organizational recovery. Thus, resilient corporations are less likely to fail, adapt better to environmental changes, and recover more quickly than vulnerable organizations (Hall, Malinen, Vosslamber,

& Wordsworth, 2016; Lombardi, Cunha, & Giustiniano, 2021; Prayag, Spector, Orchiston, & Chowdhury, 2020). The crisis management of tourism companies can be expressed as the resilience response of organizations and their employees to a crisis, as well as showing different resilience abilities at the various crisis stages. The resilience of tourism companies and employees is not only reflected in the resistance and prevention to potential risk factors in the pre-event and prodromal stages; but also in adaptation and collaborative responses to the impacts of a crisis in its emergency and intermediate stages, as well as in the recovery and bouncing back in the recovery and resolution stages. Therefore, from the crisis management perspective and the crisis lifecycle, resistance, adaptability, cooperation, restoration, and thriving are tourism corporations' five core elements of employee resilience. Based on that, this research conceptualized HERC and validated its dimensions and measurement scale.

***Employee resilience***

*Conceptualization of employee resilience*

A widely accepted definition of employee resilience has yet to be agreed upon. However, this resilience encompasses traits, capacities, processes, and outcomes (Reich, Zautra, & Hall, 2010; Niitsu et al., 2017). Resilience is a desirable characteristic that enables individuals to deal with difficult circumstances (Connor & Davidson, 2003; Mubarak et al., 2022; Ong et al., 2006). The capacities perspective considers resilience to be a mixture of individual abilities, including employee survivability, resistance, adaptability, restoration, thrivingness, and development when confronted with losses, difficulties, and disadvantages (Näswall et al., 2013, 2015; Wang, Cooke, & Huang, 2013). Individual adaptation to and recovery from adversity is the process-oriented perspective that treats resilience as a dynamic process (Xie et

al., 2023; Zhu et al., 2019). Resilience as a behavioral function that helps individuals to recover from adversity is the emphasis in the outcome perspective (Harvey & Delfabbro, 2004).

The antecedents of individual resilience are adversity, trauma, failure, stress, difficulty, and frustration (Gillespie, Chaboyer, & Wallis, 2007; Niitsu et al.,2017). Employee resilience leads to the capability to adapt and recover quickly from hostile conditions (Chen, Liu, Li, & Cai, 2022). Resilience is considered to be a dynamic capacity that can be developed through training and exercise, which helps employees continuously resist, adapt, recover, and thrive in adversity (Saad & Elshaer, 2020; Gillespie et al., 2007; Luthans, 2002). Therefore, employee resilience is a dynamic and developable ability in adverse conditions such as trauma, difficulty, failure, stress, and frustration, demonstrated in the resistance, adaptation, cooperation, and ultimate achievement of recovery and thrivingness of employees to these adverse conditions (Xie et al., 2022).

*Dimensions and measurement of employee resilience*

Employee resilience dimensions and measurement are still in continuous development and exploration. Since current definitions of employee resilience involve diverse orientations (e.g., trait, capacity, process, and outcome), there are also diverse measurement scales with different conceptualizations, attributes, and dimensions. Regarding trait orientation, four resilience scales are widely used and revised in various occupational settings to measure employee resilience: the Connor-Davidson Resilience Scale (CD-RISC), the Dispositional Resilience Scale (DRS), the Ego-Resilience Scale (ERS), and the Resilience Scale (RS) (Block & Kremen, 1996; Connor & Davidson, 2003; Hu, Zhang, & Wang, 2015; Wagnild &

Young, 1993). For capacity, Näswall et al. (2013) developed an employee resilience scale with 18 items in five dimensions (proactive posture, learning orientation, positive outlook, adaptive capacity, and network leveraging).

Various measurement structures for employee resilience have been proposed, including non-independent, independent, multidimensional, and context-specific structures. Regarding the non-independent structure, some researchers measured employee resilience as a component of psychological capital; for example, Luthans, Youssef, and Avolio (2007) proposed that hope, self-efficacy, resilience, and optimism constituted employee psychological capital and that it was a higher-order factor. For the independent structure, some research regards resilience as employee positive personality characteristics, which help them sustain high engagement, passion, and performance in adversity or crises (Aguiar-Quintana et al., 2021; Dai, Zhuang, & Huan, 2019; Yang, Lu, & Huang, 2020). For a multidimensional structure, the dimensions of employee resilience are the ability to cope with multiple adversities. For example, Saad and Elshaer (2020) measured employee resilience from the dimensions of hardiness, resourcefulness, and optimism. Career, educational, emotional, and behavioral resilience have emerged as concepts (Luthar, Cicchetti, & Becker, 2000; Su et al., 2022). The context-specific structure of employee resilience measurement is gradually receiving greater concern. For example, London and Noe (1997) introduced resilience into career management. They proposed that career resilience is a dimension of career motivation and represents an ability for adapting to changing situations, even those that are discouraging or disruptive.

***Hotel employee resilience***

Resilience is hotel employees' dynamic and developable capabilities to resist, adapt, and cooperate against adversity and attain recovery and growth (Saad & Elshaer, 2020; Xie et al., 2023). Hotel employee resilience enables them to maintain positive working states such as job engagement, positive emotions, and job satisfaction during adversity or crisis (Aguiar-Quintana, et al., 2019; Zhu, Zhao, & Zhou, 2019) and has a critical influence on employee job security, well-being, creative performance, service quality, organizational resilience, and corporate business continuity (Prayag et al., 2020; Saad & Elshaer, 2020; Xie, Zhang, Chen, & Morrison, 2023; Yang, Lu, & Huang, 2020). This research combined crisis management and the crisis lifecycle model proposing that hotel employee resilience is a five-factor model composed of resistance, adaptability, cooperation, restoration, and thriving.

*Resistance*

Resistance is an employee's ability to identify, resist, and prevent various potential risk factors when facing a crisis or adversity. Hotel employees suffer various potential risk factors during their work, including customer mistreatment, facility failures, virus infections, terrorist attacks, and poor security management (Krause, Scherzer, & Rugulies, 2005; Pizam, 2010; Xie, Zhang, Morrison, & Chen, 2022; Yang, Lu, & Huang, 2020; Zhang et al., 2020). The resistance and prevention of the potential safety and risk factors form the hotel employees' ability to resist. Hotel employees can engage in safety compliance and safety participation to resist the potential risk factors during a significant crisis and develop safety adaptation to prevent and solve the ever-changing safety threats and risk issues in hotel workplaces (Kim, Kim, & Lee, 2021; Zhang et al., 2020; Zhang, Xie, & Morrison, 2021). In addition, employees with strong resistance have rational consideration, optimism, and hardiness during

adversity or crisis, mitigating and buffering the negative impacts (Saad & Elshaer, 2020). For example, Yang et al. (2020) examined resilience's moderating effect of customer mistreatment on employee well-being. They revealed that employee resilience mitigated the negative result of this mistreatment on employee vigor and exhaustion. Thus, resistance is a protective factor to shield hotel employees' resources and well-being from being damaged in adverse situations.

*Adaptability*

Adaptability refers to the employee's capacity to adjust and actively adapt to crisis or adversity. Essentially, adaptability emerges naturally after a crisis or disaster, and it is reflected in the fact that employees make full use of resources, properly deal with various emergencies, and make appropriate self-adjustment and work adaptation based on the complex and changeable crisis and adverse situations (Rasheed et al., 2020; Nilakant et al., 2014). Thus, adaptability refers to employee efforts to maintain matching with external work environments in adversity or crisis (Savickas, 2011), thereby achieving survival and livelihood. Since hotel employees encounter unfavorable conditions such as weak job security, serious occupational disease, restricted career development, and high social stigma (Krause, Scherzer, and Rugulies, 2005; Xie et al., 2020), employee and career adaptability have received increasing attention in hospitality. Hotel employees with strong career adaptability can more readily adjust to the demands of social and psychological challenges and resolve problems creatively in adverse situations, which significantly predicts their career development, work well-being, and intentions to leave (Zhang, Xie, Wang, Morrison, & Coca-Stefaniak, 2020; Rasheed, Fatima, & Tariq, 2020; Safavi & Bouzari, 2019). In addition,

employee capacity to adapt (human capital) during a crisis, such as problem-solving skills, innovation and creativity, self-adjustment and self-organize, internal resources utilization, and situation monitoring and awareness, is an important indicator of the hotel disaster resilience framework (Brown et al., 2018).

*Cooperation*

Cooperation represents the ability of employees to support, communicate, and collaborate with others in crises or adversity. Hotels offer comprehensive products and services (e.g., accommodation, business services and meeting rooms, entertainment, food and beverages). Individual employees need to gain the knowledge, experience, and skills to cope with diverse safety issues. Thus, hotel employees must share information, exchange resources, and collaborate with others to respond effectively to crises or adversity. Hotel employees can seek cooperation, communication, and support from customers, colleagues, supervisors, organizations, and managers. Procedural and emotional support from hotel managers positively impacts employee quality of life during adverse conditions such as customer incivility (Baker & Kim, 2020). The recognition of the support provided by supervisors and colleagues for managing errors has a positive effect on employees' psychological well-being and their ability to recover effectively from service failures (Guchait et al., 2014). Moreover, the value of co-creation and cooperation by employees and customers, such as knowledge and information sharing, resource exchange, and service cooperation, can ensure the operation of service interactions safely and orderly and benefit both employees and customers (Yen et al., 2020).

*Restoration and thriving*

Restoration is the ability of employees to recover and rebound from crises and adversity. Thriving refers to the ability of employees to attain growth and development based on restoration. Thus, restoration and thriving are the outcomes when employees conquer and overcome a crisis or adversity, manifested in the recovery and growth from the negative effects caused. A crisis or significant adversity negatively affects hotel employees, including their career status (e.g., unemployment), physical and mental states (e.g., physical health, emotional exhaustion), and families (e.g., family well-being) (Chien & Law, 2003; Goodrich, 2002; Yang, Lu, & Huang, 2020; Zhang et al., 2020; Agarwal, 2021). Thus, the ability to recover refers to restoring stable career development, healthy physical and mental states, and harmonious work-family relationships after a crisis or adversity. Multiple factors, such as mindfulness, organizational error tolerance, organizational support, human resource practices, and empowerment, are identified as having important impacts on hotel employee recovery from crises or adversity (e.g., COVID-19, service failures) (Agarwal, 2021; Hewagama, Boxall, Cheung, & Hutchison, 2019; Wang, Guchait, & Paşamehmetoğlu, 2020; Wang, Wen, Paşamehmetoğlu, & Guchait, 2021). The ability to thrive is to achieve growth and development based on restoration, directly reflected in career development, ability improvement, and confidence enhancement of hotel employees in crises or adversity (Saad & Elshaer, 2020; Okumus & Karamustafa, 2005). This helps to improve employee performance, occupational and life satisfaction, and well-being (Dai, Zhuang, & Huan, 2019; Hewagama, Boxall, Cheung, & Hutchison, 2019; Kawakubo & Oguchi, 2019).

**Scale development**

We employed the method of developing a scale based on Churchill's (1979) mixed-method approach. Three studies were conducted to develop the HERC scale. In Study 1, the dimensions of hotel employee resilience were identified. In Study 2, the initial item pool for HERC was generated, and a survey was carried out to refine the scale. Study 3 validated the factor structure.

***Study 1: Dimensions***

*Research design*

This research conceptualized hotel employee resilience during COVID-19. Face-to-face interviews during COVID-19 risked infection as well as violating the restriction of "social distance". In addition, employee resilience involves hotel employees' life status and performance, more sensitive topics for them and hotel managers. Thus, an online questionnaire with three open-ended questions was used to gather employee perceptions of resilience during crisis events (Walsh, 2003). The respondents did supply their identities.

The online questionnaire contained three open-ended questions related to HERC and several respondent characteristics (gender, age, marital, education, department, position, monthly income, and work experience). They answered the following questions: (1) What qualities did employees need to possess to help hotels overcome the COVID-19 crisis? (2) What capabilities did they need to have to successfully complete during COVID-19? (3) What were the main features of resilience among hotel employees amidst the COVID-19 outbreak? These queries were examined and analyzed by a group of professionals comprising hospitality professors and Ph.D. scholars.

*Data collection*

A prominent website for market research in China (www.wjx.cn) and convenience sampling were used for online interviews. Generally, upscale hotels have substantial requirements on the abilities and qualities of their employees, and often provide services and training to develop their resilience and dynamic adaptability during major crises, thus providing customers with high service quality as well as ensuring customer safety. Thus, this research selected upscale hotels to identify the dimensions of hotel employee resilience. Ten upscale hotels opened during the pandemic in Fujian, Jiangxi, and Sichuan, China, were surveyed, in June 2020. Hotel human resource managers were sent the hyperlink to the interview questionnaire for checking and were asked to forward the link to employees in various positions. The participants were provided with a guarantee that the interviews were solely for academic purposes, and that their responses would remain anonymous. Finally, a total of 69 respondents were surveyed. The respondents were 35 females and 34 males with 75.4% married. Most were 20-39 (68.1%), and 95.7% were senior high school or college graduates. Some 43.5% were frontline employees (e.g., from the concierge, housekeeping, and food and beverage departments) and 34.8% earned CNY 2,501-5,000 monthly. Junior staff represented 27.5% and 52.2% were senior managers. Individuals who possessed a work experience of more than five years in the hospitality industry represented 66.7% of the sample.

*Analysis and coding of data*

Thematic analysis was utilized to examine and interpret the data obtained from the interviews. Miles and Huberman (1994) proposed a staged analysis procedure of familiarization, coding, and categorization, which was adopted in this research. All interview content was read and checked for accuracy in the first stage. Second, coding and labeling were done for the terms,

expressions, and statements that convey the concept of HERC. Initial concepts were extracted and identified. Third, the initial coding and concepts were categorized, and then core themes were extracted. Two researchers independently reviewed and checked the processes used in the first and second stages. The first researcher coded, categorized, and refined interview content. The second evaluated the results using agree-disagree, closed-ended responses). To enhance the validity of coding and categorization, any conflicting viewpoints were addressed and resolved.

*Results*

A coding set consisting of 616 labels was created. The 616 labels were transcribed and narrowed down to 30 normative concepts after several rounds of discussion between the two researchers, and five core themes were extracted and purified. HERC consisted of the following five dimensions: resistance, adaptability, cooperation, restoration, and thriving (Appendix 1). The resistance included hardiness, sticking to posts, anti-pressure, optimism, staying calm, and physical fitness. Adaptability included safety consciousness, obeying arrangements, mental adaptation, environmental adaptation, versatility, emergency response, and deployment execution. The cooperation included overcoming issues, sticking together, communication, teamwork, and self-sacrifice. Restoration included performance, passion, and confidence restoration. Thriving included skill improvement, learning, growth, increased responsibility, enhanced occupational quality, and ability enhancement. The survey's hyperlink was then sent to three more hotel employees to perform a theoretical saturation test. There were no new concepts and core themes emerging, indicating a theoretical saturation of the thematic analysis.

***Study 2: Creating and refining items***

*The questionnaire*

The HERC scale was the first questionnaire section, comprising the dimensions of resistance, adaptability, cooperation, restoration, and thriving. Four stages were completed to produce the measurement items. In the first stage, based on the dimensions and the conceptualization identified in Study 1, relevant HERC items were extracted and summarized from previous research through an extensive literature review. Items translated from English to Chinese were reviewed by a group of experts comprised of four Ph.D. students and two professors who specialized in hospitality studies. Twelve items were derived from the thematic analysis of interviews in the second stage (Appendix 2). The expert group along with two hospitality managers assessed all items' content validity in the third stage. Items with similar connotations were merged, and items with content ambiguity that did not fit the research context were removed. In addition, each item's expression was optimized and improved according to the hospitality and COVID-19 contexts. The fourth stage was a pilot study to test the item reliability of all dimensions. Respondent profile characteristics were in the second questionnaire section.

Some 215 valid pilot survey questionnaires were gathered from four upscale Chinese hotels in June 2020. The Cronbach's alphas for all dimensions were higher than 0.8; the HERC scale KMO was 0.944; and the factor loadings and community for all items were more than 0.5. However, several items (e.g., AD06, CO03) were cross-loaded in different dimensions in a rotated component matrix, and the two dimensions of restoration and thriving were indistinguishable. Thus, the expert group modified and improved these items and

produced the final version of the HERC scale (Appendix 3).

*Data collection*

Thirteen upscale hotels in Sichuan, Anhui, Hunan, and Zhejiang were surveyed in June 2020. The online survey was administered via a prominent website for market research in China (www.wjx.cn) due to the pandemic conditions at the time. The hyperlink to the survey was sent to employees by the human resource managers of the surveyed hotels. Finally, 300 forms were collected of which were 253 valid, for a response rate of 84.3%. The participant profiles are presented in Table 1.

[Insert Table 1 here]

*Reliability assessment*

The HERC scale's reliability was assessed using SPSS 22.0, with Cronbach's alphas and item-to-total-correlations (ITTC) as criteria (> 0.7 and > 0.3, respectively). One item (RE01) had an ITTC below 0.3 and was subsequently removed. The overall scale had a Cronbach alpha of 0.957, and dimensions ranged from 0.795 to 0.938, demonstrating adequate internal consistency for each dimension. The remaining 29 items were analyzed using exploratory factor analysis.

*Exploratory factor analysis (EFA)*

To detect the dimensions of the HERC scale, an EFA was run using principal component and varimax rotation analysis. The KMO index was found to be 0.939, which is above the acceptable threshold of 0.7. A total of 29 items were classified into five factors with eigenvalues surpassing one. The total variance accounted for by the five factors was 71.36%. Based on the recommendations of Straub (1989), one item (RE05) with a community below

0.5 and one item (AD05) with cross-loading were removed. The remaining 27 items were entered into a second EFA. The KMO index was 0.936, indicating good sampling adequacy. Five factors were identified with eigenvalues higher than one and factor loadings above the recommended threshold of 0.5. Together, these factors accounted for 72.89% of the total variance, as presented in Table 2.

[Insert Table 2 here]

***Study 3: Testing the validity of the scale***

*Data collection*

another set of questionnaires was administered in Study 3 in early July 2020 to assess the HERC factor structure detected in Study 2. A convenience sampling method was used to survey 28 upscale hotels that were operational during the COVID-19 pandemic. The data from the main geographical regions of Eastern Cina (Fujian, Zhejiang, Guangdong), Western China (Sichuan, Chongqing, Guizhou), and Northeast China (Jilin), Central China (Anhui, Hunan) were collected for analysis. A total of 800 forms were collected of which 602 were valid (75.25%). Table 2 shows the demographic profile of the survey respondents.

[Insert Table 2 here]

*Confirmatory factor analysis (CFA)*

We used AMOS 21.0 to run CFA. According to Hair et al.'s (2010) recommendations, the default model was adjusted and improved according to the following: (1) each item's standard factor loading had to be above 0.5; (2) each dimension's average variance extracted (AVE) must be above 0.5; and (3) the model modification indices. To achieve a more suitable factor structure and improve goodness-of-fit indices, four items (RE02, CO05, RE05,

TR03) were removed ($\chi^2/df$ = 3.268, RMR = 0.058, RMSEA = 0.061, NFI = 0.926, CFI = 0.947, TLI = 0.937, IFI = 0.947, RFI = 0.911, GFI = 0.907, PNFI = 0.772). The factor loadings of the items were between 0.536 and 0.970, the dimension's composite reliability (CR) ranged from 0.8531 to 0.9446, and the AVEs for dimensions were from 0.5827 to 0.7767, which all surpassed the cut-off values and indicated good convergent validity (Table 3).

[Insert Table 3 here]

*Correlation analysis*

The largest Pearson correlation coefficient value (0.673) was lower than the lowest square root value of the AVE (0.724), suggesting good discriminant validity for all dimensions. The Pearson correlation coefficients for all HERC dimensions were significant at the $p < 0.01$ level, demonstrating nomological validity (Table 4).

[Insert Table 4 here]

*Model comparison of HERC*

We developed four alternative models to detect the best dimensional structure of the HERC scale (Figure 1). Models 1 and 2 failed to meet the critical standards. Model 3 ($\chi^2/df$ = 3.268, RMR = 0.058, RMSEA = 0.061, CFI = 0.947) and Model 4 ($\chi^2/df$ = 3.465, RMR = 0.065, RMSEA = 0.064, CFI = 0.941) shown high fit indices. In Model 4, the standard factor loading of the five dimensions (resistance, adaptability, cooperation, restoration, and thriving) for the second-order HERC were 0.750, 0.864, 0.866, 0.890, and 0.806, all exceeding the 0.5 thresholds and being statistically significant at the $p < 0.01$ level. Therefore, the HERC scale applies to the five correlated measurement structures at the first-order (Figure 1-3) and latent

variable structures (i.e. second-order, Figure 1-4).

[Insert Figure 1 here]

*Cross-validity of HERC*

SPSS was used to generate two random 301-case sub-samples. The cross-validity of HERC was assessed through inter-sample invariance testing. The results showed that the unconstrained and constrained models met the critical standard ($1 < \chi^2/df < 3$, RMSEA < 0.08, RMR < 0.08, CFI > 0.9). The chi-square difference test for the samples was found to be invariant (△ x 2 (△df =18) =16.970， p = 0.525 > 0.05), indicating that the five-dimensional structure of the HERC scale was supported by the consistency of results across various samples.

*Predictive validity of HERC*

Previous research showed that hotel employee resilience was negatively related to intentions to leave (Dai, Zhuang, & Huan, 2019). The predictive validity of HERC could be confirmed by examining its link with turnover intentions. Four items adapted from Bluedorn (1982) were employed to measure employee intentions to leave. The results showed that HERC negatively predicted employee turnover intentions (β= -0.374, t = -7.847, p < 0.001) and, thus, the HERC demonstrated a high degree of predictive validity.

## Conclusions and discussion

### *Conclusions*

This research utilized a mixed-method approach to develop a HERC scale. Firstly, a literature review was carried out, followed by interviews to identify the dimensions of HERC.

Subsequently, multiple rounds of questionnaire surveys were employed to validate the HERC scale. The main conclusions were as follows:

First, the concept of HERC was represented by a five-factor model comprising resistance, adaptability, cooperation, restoration, and thriving. Through thematic analysis, the study identified that hotel employee resilience can be classified into five core themes that represent employee resistance, adaptation, and collaborative responses to the negative influence of the pandemic, ultimately achieving restoration and maintaining self-development. This implies that hotel employee resilience is a dynamic developmental ability that enables employees to be resistant, adaptive, and cooperative, as well as to recover and thrive after experiencing trauma, stress, challenges, failures, difficulties, and crisis conditions.

Second, the HERC scale demonstrated good reliability and validity across five first-order and second-order measurement structures. Notably, the scale's application negatively correlated with employee turnover intentions amid COVID-19, while revealing dimensional variations in HERC. Specifically, employees tended to have higher scores for cooperation and restoration, and lower scores for resistance and adaptability during a crisis.

***Theoretical implications***

First, drawing on the perspectives of crisis management and developmental psychology, this research developed and proposed a five-factor model of HERC. This theoretical framework offers a novel perspective for future research on employee resilience. Hotel employee resilience is gaining increasing attention during adversity and in major crises (Aguiar-Quintana et al.,, 2021; Dai, Zhuang, & Huan, 2019; Saad & Elshaer, 2020; Xie, Zhang, Chen, & Morrison, 2023; Yang, Lu, & Huang, 2020). However, there needs to be

research conceptualizing and identifying hotel employee resilience based on the perspective of crisis development and dynamic responses. In addition, employee resilience needs a consensus definition and research framework, and the connotation and measurement scale of HERC needs more theoretical analysis and empirical investigation. Therefore, this research proposed that hotel employee resilience is a dynamic developmental ability to resist, adapt, cooperate, and finally achieve recovery and thrive from adversity and crises. The proposed five-factor model presents a process-oriented theoretical framework for research on employee resilience and serves as a foundation for devising crisis response strategies in the hotel industry.

Second, this research developed a reliable and valid HERC measurement scale for use in subsequent empirical investigations. While the measurement of employee resilience has received increasing attention, there exists a diversity of measurement properties and structures arising from different theoretical and disciplinary perspectives (Connor & Davidson, 2003; Näswall et al., 2013; Yu et al., 2007). Furthermore, several relevant measurement scales have been proposed, including non-independent, independent, multidimensional, and context-specific structures (Saad & Elshaer, 2020; Dai, Zhuang, & Huan, 2019; Luthans et al., 2007; London & Noe, 1997). Despite resilience being a construct that arises from adversity and crises (Gillespie et al., 2007), there is a dearth of research on identifying dimensions and developing a scale for hotel employee resilience during crises. The main theoretical contribution of this study lies in the creation of the HERC scale, which serves as an empirical instrument and provides evidence for researching employee resilience in the hospitality sector.

***Managerial implications***

First, hotel managers are advised to implement measures to enhance employee resilience during times of dynamic crisis events, thereby improving employees' abilities to respond to external crises and adverse conditions effectively. Specifically, hotel managers should develop resilience-strengthening strategies that match the crisis stage to achieve effective adaptation and responses. In the pre-event and prodromal stages, hotel managers should focus on strengthening employees' ability to identify, resist, and prevent potential risk factors. This can be achieved through training and education that enhances employees' coping skills and safety consciousness. During the emergency and intermediate stages, hotel managers should empower employees with autonomy, reduce excessive intervention, share information, and provide necessary resources to improve employee adaptability to adverse crises. Managers should also encourage employees to cooperate to overcome difficulties and develop cross-department and cross-position crisis response plans. In the recovery and resolution stages, hotel managers should focus on caring for the needs of employees, helping them adjust their work status, and providing positive feedback for their psychological worries. Managers should also enhance positive expectations and confidence in the hotel crisis management by demonstrating the effectiveness of crisis responses. Moreover, hotel managers should encourage employees to regard crises as opportunities for learning and development. Establishing and implementing crisis feedback systems can help achieve this goal. Hotel managers should organize experience-sharing sessions and provide training on crisis response and its effects on employees to enhance their coping and adaptive skills.

Second, hotel managers can apply the proposed HERC scale as a diagnostic tool to

evaluate the resilience abilities of hotel employees, serving as a benchmark for hotel HRM and crisis management. For HRM, this scale can be utilized to assess the resilience abilities of new employees and serve as a significant indicator for recruitment and promotion decisions. Subsequently, hotel managers can adjust job duties and responsibilities based on individual resilience capacities. For instance, managers can assign resilient employees to positions that require significant challenges, complexity, and emotional labor, which could minimize service failures and accidents caused by weak resilience staff, ultimately improving overall hotel service performance. In terms of crisis management, the proposed HERC scale should be used to continually monitor changes in employee resilience and its dimensions during crises. Tailored strategies should be designed to adjust and improve the hotel crisis management system. For example, if employees score low on the cooperative dimension of resilience, managers should develop systems that foster staff collaboration during a crisis or establish a crisis-lead team that can direct all employees and aggregate resources to cope with difficulties and achieve rapid recovery and development.

***Limitations and avenues for future research.***

There were several limitations to this research. Firstly, the HERC scale was built and validated amidst the global pandemic. It is vital to test the validity of the scale in different crisis contexts, such as service failures or terrorist attacks. Secondly, the study only focused on employees from upscale hotels in China, and further research is needed to determine if the HERC scale is applicable to different types of lodging, such as homestays and budget hotels, and to individuals from diverse cultural backgrounds. Thirdly, the study did not consider the potential impact of employee demographics and personalities on their resilience responses

during crises. Future research should investigate whether there are differences in resilience and its dimensions among hotel employees with varying risk propensities, positions, and educational backgrounds.

**References**

Aguiar-Quintana, T., Nguyen, H., Araujo-Cabrera, Y., & Sanabria-Díaz, J. M. (2021). Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience. *International Journal of Hospitality Management*, 94, 1-10.

Agarwal, P. (2021). Shattered but smiling: Human resource management and the well-being of hotel employees during COVID-19. *International Journal of Hospitality Management*, 93, 1-10.

Baker, M. A., & Kim, K. (2020). Dealing with customer incivility: The effects of managerial support on employee psychological well-being and quality-of-life. *International Journal of Hospitality Management*, 2020, 87, 1-11.

Becken, S. (2013). Developing a framework for assessing resilience of tourism sub-systems to climatic factors. *Annals of Tourism Research*, 43, 506-528.

Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality & Social Psychology*, 70(2), 349-361.

Bluedorn, A. C. (1982). A unified model of turnover from organizations. *Human Relations*, 35(2), 135-153.

Brown, N. A., Orchiston, C., Rovins, J. E., et al. (2018). An integrative framework for investigating disaster resilience within the hotel sector. *Journal of Hospitality and Tourism Management*, 36, 67-75.

Bullock, J. A., Haddow, G. D., & Coppola, D. P. (2017). *Introduction to emergency management*. Butterworth-Heinemann.

Chen, H., Liu, B., Li, Y., & Cai, Y. (2022). The relationship between negative life events and resilience among Chinese service employees: Nonlinearly moderated by lifestyle habits. *Journal of Asian Economics*, 80, 101457.

Chen, K., Chang, C., & Wang, C. (2019). Frontline employees' passion and emotional exhaustion: The mediating role of emotional labor strategies. *International Journal of Hospitality Management*, 76, 163-172.

Chien, G. C., & Law, R. (2003). The impact of the Severe Acute Respiratory Syndrome on hotels: a case study of Hong Kong. *International Journal of Hospitality Management*, 22(3), 327-332.

Churchill, G. A. (1979). A Paradigm For Developing Better Measures Of Marketing Constructs. *Journal of Marketing Research*, 16(1), 64-73.

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety*, 18(2), 76-82.

Dai, Y., Zhuang, W., & Huan, T. (2019). Engage or quit? The moderating role of abusive supervision between resilience, intention to leave and work engagement. *Tourism Management*, 70, 69-77.

Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism*

*Management*, 22(2), 135-147.

Fey, S., & Kock, A. (2022). Meeting challenges with resilience: How innovation projects deal with adversity. *International Journal of Project Management*, 40(8), 941-950.

Fink, S. (1986). *Crisis Management: Planning for the Inevitable*. New York: American Management Association.

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2007). Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse*, 25(1-2), 124-135.

Goodrich, J. N. (2002). September 11, 2001 attack on America: a record of the immediate impacts and reactions in the USA travel and tourism industry. *Tourism Management*, 23(6), 573-580.

Guchait, P., Paşamehmetoğlu, A., & Dawson, M. (2014). Perceived supervisor and co-worker support for error management: Impact on perceived psychological safety and service recovery performance. *International Journal of Hospitality Management*, 41, 28-37.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2010). *Multivariate Data Analysis: A Global Perspective 7 Pearson*. Upper Saddle River: NJ.

Hall, C. M., Malinen, S., Vosslamber, R., & Wordsworth, R. (Eds.). (2016). *Business and post-disaster management: Business, organisational and consumer resilience and the Christchurch earthquakes*. Abingdon, UK: Routledge.

Hao, F., Xiao, Q., & Chon, K. (2020). COVID-19 and China's hotel industry: Impacts, a disaster management framework, and post-pandemic agenda. *International Journal of Hospitality Management*, 90, 102636.

Harvey, J., & Delfabbro, P. H. (2004). Psychological resilience in disadvantaged youth: A

critical overview. *Australian Psychologist*, 39, 3-13.

Hewagama, G., Boxall, P., Cheung, G., & Hutchison, A. (2019). Service recovery through empowerment? HRM, employee performance and job satisfaction in hotels. *International Journal of Hospitality Management*, 81, 73-82.

Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality & Individual Differences*, 76, 18-27.

Kawakubo, A., & Oguchi, T. (2019). Recovery experiences during vacations promote life satisfaction through creative behavior. *Tourism Management Perspectives*, 30, 240-250.

Khliefat, A., Chen, H., Ayoun, B., & Eyoun, K. (2021). The impact of the challenge and hindrance stress on hotel employees interpersonal citizenship behaviors: Psychological capital as a moderator. *International Journal of Hospitality Management*, 94, 1-11.

Kim, S., Kim, P. B., & Lee, G. (2021). Predicting hospitality employees' safety performance behaviors in the COVID-19 pandemic. *International Journal of Hospitality Management*, 93, 102797.

Krause, N., Scherzer, T., Rugulies, R. (2005). Physical workload, work intensification, and prevalence of pain in low wage workers: Results from a participatory research project with hotel room cleaners in Las Vegas. *American Journal of Industrial Medicine*, 48(5), 326-337.

Kuntz, J. R. C., Malinen, S., Näswall, K. (2017). Employee resilience: Directions for resilience development. *Consulting Psychology Journal Practice & Research*, 69(3), 223-242.

Lombardi, S., Cunha, P., & Giustiniano, L. (2021). Improvising resilience: The unfolding of

resilient leadership in COVID-19 times. *International Journal of Hospitality Management*, 95, 1-13.

London, M., & Noe, R. A. (1997). London's career motivation theory: An update on measurement and research. *Journal of Career Assessment*, 5(1), 61-80.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital*. New York: Oxford University Press.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695-706.

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60(3), 541-572.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71, 543-562.

McLarnon, M. J. W., & Rothstein, M. G. (2013). Development and Initial Validation of the Workplace Resilience Inventory. *Journal of Personnel Psychology*, 12(2), 63-73.

Meyer, A. D. (1982). Adapting to environmental jolts. *Administrative Science Quarterly*, 27(4), 515-537.

Miles, M. B., Huberman, A. M., Huberman, M. A., et al. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage, New York, NY.

Mubarak, N., Khan, J., & Khan, A. K. (2022). Psychological distress and project success: The moderating role of employees' resilience and mindfulness. *International Journal of Project Management*, 40(5), 566-576.

Näswall, K., Kuntz, J., Hodliffe, M., & Malinen, S. (2015). Employee Resilience Scale (EmpRes) Measurement Properties. *Resilient Organisations Research Report*, 4, 1-7.

Näswall, K., Kuntz, J., Hodliffe, M., & Malinen, S. (2013). Employee resilience scale (EmpRes): Technical report. *UN Research Repository*, 1-10.

Nguyen, Q., Kuntz, J. R. C., Näswall, K., & Malinen, S. (2016). Employee resilience and leadership styles: the moderating role of proactive personality and optimism. *New Zealand Journal of Psychology*, 45(2), 13-21.

Niitsu, K., Houfek, J. F., Barron, C. R., Stoltenberg, S., Kupzyk, K., & Rice, M. (2017). A concept analysis of resilience integrating genetics. *Issues in Mental Health Nursing*, 38(11), 896-906.

Nilakant, V., Walker, B., Baird, R., et al. (2014). Research note: Conceptualising adaptive resilience using grounded theory. *New Zealand Journal of Employment Relations*, 39(1), 79-86.

Okumus, F., & Karamustafa, K. (2005). Impact of an economic crisis evidence from turkey. *Annals of Tourism Research*, 32(4), 942-961.

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, 91(4), 730-749.

Paredes, M. R., Apaolaza, V., Fernandez-Robin, C., Hartmann, P., & Yañez-Martinez, D. (2021). The impact of the COVID-19 pandemic on subjective mental well-being: The interplay of perceived threat, future anxiety and resilience. *Personality and Individual Differences*, 170, 110455.

Pizam, A. (2010). Hotels as tempting targets for terrorism attacks. *International Journal of Hospitality Management*, 29(1), 1-1.

Pizam, A., & Mansfeld, Y. (1996). *Tourism, crime and international security issues*. NY: Sage.

Prayag, G. (2017). Symbiotic relationship or not? Understanding resilience and crisis management in tourism. *Tourism Management Perspectives*, 25, 133-135.

Prayag, G., Spector, S., Orchiston, C., & Chowdhury, M. (2020). Psychological resilience, organizational resilience and life satisfaction in tourism firms: Insights from the Canterbury earthquakes. *Current Issues in Tourism*, 23(10), 1216-1233.

Rasheed, N., Fatima, I., & Tariq, O. (2022). University students' mental well-being during COVID-19 pandemic: The mediating role of resilience between meaning in life and mental well-being. *Acta Psychologica*, 227, 103618.

Rasheed, M. I., Okumus, F., Weng, Q., Hameed, Z., & Nawaz, M. S. (2020). Career adaptability and employee turnover intentions: The role of perceived career opportunities and orientation to happiness in the hospitality industry. *Journal of Hospitality and Tourism Management*, 44, 98-107.

Reich, J. W., Zautra, A. J., & Hall, J. S. (2010). *Handbook of adult resilience.* New York: The Guilford Press.

Saad, S. K., Elshaer, I. A. (2020). Justice and trust's role in employees' resilience and business' continuity: Evidence from Egypt. *Tourism Management Perspectives*, 35, 100712.

Safavi, H. P., & Bouzari, M. (2019). The association of psychological capital, career

adaptability and career competency among hotel frontline employees. *Tourism Management Perspectives*, 30, 65-74.

Savickas, M. L. (2011). Career adaptability: An integrative construct for life-span, life-space theory. *Career Development Quarterly*, 45(3), 247-259.

Shin, J., Taylor, M. S., & Seo, M. G. (2012). Resources for change: The relationships of organizational inducements and psychological resilience to employees' attitudes and behaviors toward organizational change. *Academy of Management Journal*, 55(3), 727-748.

Steen, R., & Morsut, C. (2020). Resilience in crisis management at the municipal level: The Synne Storm in Norway. *Risk, Hazards & Crisis in Public Policy*, 11(1), 35-60.

Straub, D. W. (1989). Validating instruments in MIS research. *MIS Quarterly*, 13(2), 147-169.

Su, D. N., Truong, T. M., Luu, T. T., Huynh, H. M. T., & O'Mahony, B. (2022). Career resilience of the tourism and hospitality workforce in the COVID-19: The protection motivation theory perspective. *Tourism Management Perspectives*, 44, 101039.

Vijayalakshmi, P., Kathyayani, B. V., Sreelatha, M., Reddy, S., Manjunatha, N., Kumar, C. N., & BadaMath, S. (2023). Resilience as a protective factor on the quality of life (QoL) of Indian nursing students during the COVID-19 pandemic. *Archives of Psychiatric Nursing*, 42, 55-59.

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the resilience scale. *Journal of Nursing Measurement*, 1, 165-178.

Walsh, K. (2003). Qualitative research: Advancing the science and practice of hospitality. *Cornell Hotel & Restaurant Administration Quarterly*, 44(2), 66-74.

Wang, J., Cooke, F. L., & Huang, W. (2013). How resilient is the (future) workforce in China? A study of the banking sector and implications for human resource development. *Asia Pacific Journal of Human Resources*, 52(2), 132-154.

Wang, X., Guchait, P., & Paşamehmetoğlu, A. (2020). Anxiety and gratitude toward the organization: Relationships with error management culture and service recovery performance. *International Journal of Hospitality Management,* 89, 1-9.

Wang, X., Wen, X., Paşamehmetoğlu, A., Guchait, P. (2021). Hospitality employee's mindfulness and its impact on creativity and customer satisfaction: The moderating role of organizational error tolerance. *International Journal of Hospitality Management*, 94, 1-10.

Xie, C., Zhang, J., Chen, Y., & Morrison, A. M. (2023). The effect of hotel employee resilience during COVID-19: The moderation role of perceived risk and challenge stressors. *Tourism Management Perspectives*, 46, 101087.

Xie, C., Zhang, J., Morrison, A. M. and Chen, Y. (2022). Hotel employee perceived crisis shocks: Conceptual and scale development. *Journal of Hospitality and Tourism Management*, 51, 361-374.

Xie, C., Zhang, J., Chen, Y., Morrison, A. M., & Lin, Z. (2020). Measuring hotel employee perceived job risk: dimensions and scale development. *International Journal of Contemporary Hospitality Management*, 32(2), 730-748.

Yang, F., Lu, M., & Huang, X. (2020). Customer mistreatment and employee well-being: A daily diary study of recovery mechanisms for frontline restaurant employees in a hotel. *International Journal of Hospitality Management*, 91, 1-9.

Yen, C. H., Teng, H. Y., & Tzeng, J. C. (2020). Innovativeness and customer value co-creation behaviors: Mediating role of customer engagement. *International Journal of Hospitality Management*, 88, 1-11.

Yu, X., Zhang, J., Yu, X. N., & Zhang, J. X. (2007). Factor analysis and psychometric evaluation of the Connor-Davidson resilience scale (CD-RISC) with Chinese people. *Social Behavior & Personality*, 35(1), 19-30.

Zhang, G., Zhang, Z., & Liu, W. (2020). Turning danger into safety: A literature review and prospect of organizational resilience. *Economic Management*, 42(10), 192-208.

Zhang, J., Xie, C., & Morrison, A. M. (2021). The effect of corporate social responsibility on hotel employee safety behavior during COVID-19: The moderation of belief restoration and negative emotions. *Journal of Hospitality and Tourism Management*, 46, 233-243.

Zhang, J., Xie, C., Wang, J., Morrison, A. M., & Coca-Stefaniak, J. A. (2020). Responding to a major global crisis: The effects of hotel safety leadership on employee safety behavior during COVID-19. *International Journal of Contemporary Hospitality Management*, 32(11), 3365-3389.

Zhu, Y., Zhao, Y., Zhou, Y. (2019). Resilience in organizations: Construction of protective resources from psychological and systematic perspective. *Advances in Psychological Science*, 27(2), 357-369.

**Table 1.** Respondent profiles in Study 2 and Study 3.

| Category | | Study 2 (n = 253) | | Study 3 (n = 602) | | Category | | Study 2 (n = 253) | | Study 3 (n = 602) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n | % | n | % | | | n | % | n | % |
| Gender | Male | 100 | 39.5 | 259 | 43.0 | Monthly | ≤ 2,500 | 63 | 24.9 | 153 | 25.4 |
| | Female | 153 | 60.5 | 343 | 57.0 | income | 2,501-5,000 | 131 | 51.8 | 300 | 49.8 |
| Marital | Married | 194 | 76.7 | 462 | 76.7 | (CNY) | 5,001-10,000 | 48 | 19.0 | 117 | 19.4 |
| status | Unmarried | 59 | 23.3 | 140 | 23.3 | | 10,001-20,000 | 7 | 2.8 | 19 | 3.2 |
| Age | 20 or below | 3 | 1.2 | 10 | 1.7 | | ≥ 20,001 | 4 | 1.6 | 13 | 2.2 |
| | 20-29 | 62 | 24.5 | 141 | 23.4 | Work | ≤ 1 year | 16 | 6.3 | 39 | 6.5 |
| | 30-39 | 84 | 33.2 | 201 | 33.4 | experience | 1-3 years | 45 | 17.8 | 117 | 19.4 |
| | 40-49 | 82 | 32.4 | 190 | 31.6 | | 3-5 years | 44 | 17.4 | 92 | 15.3 |
| | 50-59 | 22 | 8.7 | 58 | 9.6 | | 5-10 years | 68 | 26.9 | 151 | 25.1 |
| | 60 or above | 0 | 0 | 2 | 0.3 | | ≥ 10 years | 80 | 31.6 | 203 | 33.7 |
| Education | Junior high college or below | 61 | 24.1 | 150 | 24.9 | Department | Front office | 27 | 10.7 | 60 | 10.0 |
| | Senior high school | 76 | 30.0 | 165 | 27.4 | | Food and beverage | 62 | 24.5 | 143 | 23.8 |
| | Junior college | 87 | 34.4 | 192 | 31.9 | | Housekeeping | 44 | 17.4 | 114 | 18.9 |
| | Bachelor’s degree | 29 | 11.5 | 91 | 15.1 | | Entertainment | 2 | 0.8 | 11 | 1.8 |
| | Master’s degree or above | 0 | 0 | 4 | 0.7 | | Security | 12 | 4.7 | 25 | 4.2 |
| Position | Trainee | 7 | 2.8 | 15 | 2.5 | | Kitchen | 13 | 5.1 | 32 | 5.3 |
| | Junior staff | 100 | 39.5 | 242 | 40.2 | | Finance | 9 | 3.6 | 29 | 4.8 |
| | Foreman | 40 | 15.8 | 88 | 14.6 | | Sales | 23 | 9.1 | 48 | 8.0 |
| | Supervisor | 52 | 20.6 | 119 | 19.8 | | Engineering | 12 | 4.7 | 34 | 5.6 |
| | Manager | 34 | 13.4 | 91 | 15.1 | | Human resources | 19 | 7.5 | 35 | 5.8 |
| | Director | 20 | 7.9 | 47 | 7.8 | | Others | 30 | 11.9 | 71 | 11.8 |

**Table 2.** Results of EFA (n = 253).

| Dimensions | Items | Mean | Community | Factor loading | Cronbach's α | Variance (%) |
|---|---|---|---|---|---|---|
| Resistance | RE02 | 5.28 | 0.636 | 0.778 | 0.788 | 9.694 |
| | RE03 | 5.81 | 0.685 | 0.768 | | |
| | RE04 | 6.17 | 0.584 | 0.714 | | |
| | RE06 | 6.02 | 0.729 | 0.607 | | |
| Adaptability | AD01 | 5.82 | 0.716 | 0.698 | 0.878 | 13.540 |
| | AD02 | 5.83 | 0.793 | 0.776 | | |
| | AD03 | 5.73 | 0.801 | 0.794 | | |
| | AD04 | 5.51 | 0.608 | 0.574 | | |
| | AD06 | 5.71 | 0.685 | 0.671 | | |
| Cooperation | CO01 | 6.26 | 0.652 | 0.707 | 0.917 | 15.931 |
| | CO02 | 5.85 | 0.517 | 0.545 | | |
| | CO03 | 6.26 | 0.790 | 0.742 | | |
| | CO04 | 6.20 | 0.763 | 0.713 | | |
| | CO05 | 6.02 | 0.760 | 0.763 | | |
| | CO06 | 6.06 | 0.804 | 0.761 | | |
| Restoration | RE01 | 6.04 | 0.789 | 0.791 | 0.932 | 17.878 |
| | RE02 | 6.06 | 0.731 | 0.692 | | |
| | RE03 | 6.01 | 0.746 | 0.758 | | |
| | RE04 | 6.02 | 0.690 | 0.709 | | |
| | RE05 | 6.13 | 0.841 | 0.774 | | |
| | RE06 | 6.11 | 0.732 | 0.607 | | |
| Thriving | TR01 | 6.09 | 0.710 | 0.600 | 0.938 | 15.854 |
| | TR02 | 6.03 | 0.777 | 0.689 | | |
| | TR03 | 6.11 | 0.837 | 0.696 | | |
| | TR04 | 5.95 | 0.870 | 0.797 | | |
| | TR05 | 5.92 | 0.760 | 0.764 | | |
| | TR06 | 6.12 | 0.677 | 0.622 | | |

**Table 3.** Results of CFA ( n = 602).

| Dimensions | Items | Factor loading | AVE | CR |
|---|---|---|---|---|
| Resistance | RE03. I can persist and overcome these difficult times | 0.684 | 0.5518 | 0.7861 |
| | RE04. I will stick to my post during the pandemic *[crisis]* | 0.729 | | |
| | RE06. I am not easily discouraged by the setbacks of the pandemic *[crisis]* | 0.810 | | |
| Adaptability | AD01. I am able to adjust to the inconvenience caused by the pandemic *[crisis]* to my job | 0.742 | 0.5248 | 0.8445 |
| | AD02. I know how to tackle my work during the pandemic *[crisis]* with ease | 0.800 | | |
| | AD03. I can resolve most problems that challenge me brought by pandemic *[crisis]* in an appropriate way | 0.786 | | |
| | AD04. I can master the skills to deal with epidemic infections *[crisis]* at work | 0.541 | | |
| | AD06. In general, I am able to adapt to changes that the pandemic *[crisis]* has brought to my work | 0.723 | | |
| Cooperation | CO01. I effectively collaborate with others at work during the pandemic *[crisis]* | 0.767 | 0.6014 | 0.8818 |
| | CO02. I actively seek support and assistance from my supervisors when needed during the pandemic *[crisis]* | 0.625 | | |
| | CO03. My colleagues and I overcome difficulties together during the pandemic *[crisis]* | 0.863 | | |
| | CO04. My colleagues and I assign tasks properly through communication during the pandemic *[crisis]* | 0.842 | | |
| | CO06. Colleagues help and support each other during the pandemic *[crisis]* | 0.758 | | |
| Restoration | RE01. I tend to bounce back and move on quickly after hard times | 0.770 | 0.6212 | 0.8911 |
| | RE02. I can recover quickly from the work set-backs caused by the pandemic *[crisis]* | 0.835 | | |
| | RE03. My work passion can quickly return to the state before the pandemic *[crisis]* | 0.752 | | |
| | RE04. My performance can quickly return to the state before the pandemic *[crisis]* | 0.758 | | |
| | RE06. I come through difficult times caused by the pandemic *[crisis]* with little trouble | 0.822 | | |
| Thriving | TR01. This response to the pandemic *[crisis]* has made me more responsible | 0.803 | 0.6271 | 0.8934 |
| | TR02. I have made my due contribution to the hotel pandemic prevention and control *[crisis response]* | 0.849 | | |
| | TR04. My emergency response capability improved during the pandemic prevention *[crisis response]* | 0.813 | | |
| | TR05. My ability to adapt improved during the pandemic prevention *[crisis response]* | 0.733 | | |
| | TR06. In general, I learned a lot from this pandemic response *[crisis* | 0.756 | | |

*response]*

**Table 4.** Correlations and square roots of AVE (n = 602).

| Dimensions | Mean | SD. | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|---|---|
| Factor 1. Resistance | 4.29 | 0.77 | (0.743) | | | | |
| Factor 2. Adaptability | 5.47 | 0.93 | 0.603** | (0.724) | | | |
| Factor 3. Cooperation | 5.97 | 0.93 | 0.509** | 0.646** | (0.775) | | |
| Factor 4. Restoration | 5.90 | 0.96 | 0.526** | 0.644** | 0.662** | (0.788) | |
| Factor 5. Thriving | 5.82 | 0.98 | 0.433** | 0.595** | 0.665** | 0.673** | (0.792) |

Notes: **p < 0.01; The diagonal element is the square root of the extracted mean variance

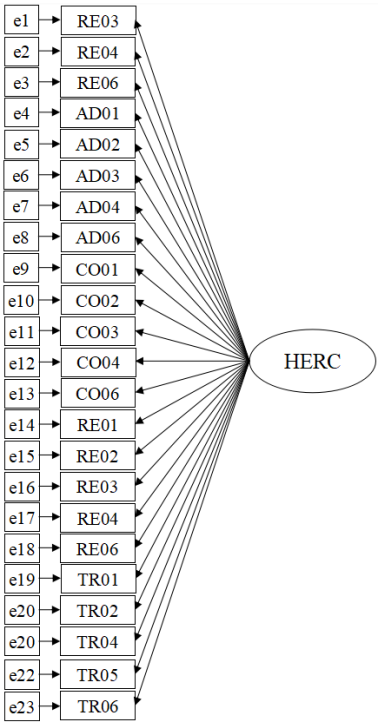


**Figure 1-1.** Model 1.

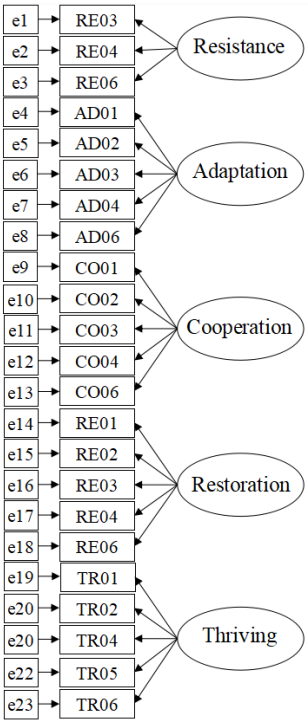


**Figure 1-2.** Model 2.

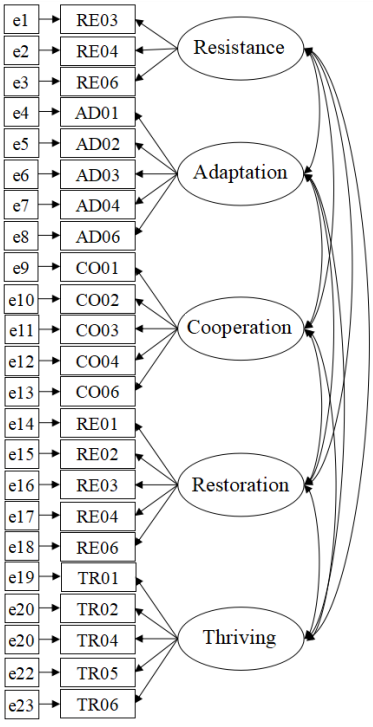


**Figure 1-3.** Model 3.

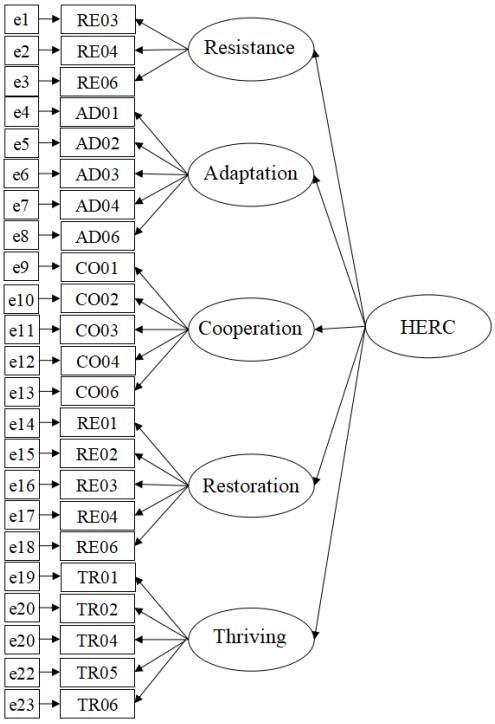


**Figure 1-4.** Model 4.

**Figure 1.** Model comparison of HERC.