

COVID-19 and Food Delivery Employees' Workplace Safety

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ABSTRACT: With the global pandemic of COVID-19 in recent years, food delivery employees' workplace safety has been severely threatened and challenged. Thus, this study hopes to understand their real work safety and its impact. Based on the perspective of human resource development, broaden-and-build theory, and internal and external marketing activities, the study examines the relationships between safety leadership, safety training, employee well-being, service quality, and customer citizenship behavior. The results using three-wave and 498 valid employee-customer pairs (498 food delivery employees and 600 customers) from 2 food delivery companies in Taiwan showed that: (1) Safety leadership positively affects employee well-being; (2) Safety training positively affects employee well-being; (3) Employee well-being positively affects service quality; (4) Employee well-being positively affects customer citizenship behavior; (5) Employee well-being mediates the relationship between safety leadership and customer citizenship behavior, and (6) Safety training moderates the relationship between safety leadership and employee well-being. Research and managerial implications are discussed.

KEYWORDS: Safety leadership; Safety training; Employee well-being; Service quality; Customer citizenship behavior

1. INTRODUCTION

In recent years, workplace safety has received significant attention and progress in practice and academia, including environmental protection, green energy technology, occupational hygiene, and health promotion methods. However, workplace accidents and accidental injuries are still on the rise (Bazzoli et al., 2020), because these strategies and methods are often seen as a means of maintaining a corporate image, fulfilling corporate social responsibility, and improving profitability, with little focus on caring for employees, reducing unsafe behaviors, and efforts to increase safety behaviors (Tetrick, Quick & Quick, 2005). Many companies do not understand the positive changes for employees' job attitudes and behaviors that take these actions (Cunningham, Galloway-Willoams & Geller, 2010).

In the literature on occupational safety, there are three main aspects of discussion and research. First, at the organizational level, maintaining a healthy and safe occupational environment can not only reduce business costs (avoid accidental disaster losses and compensation) but also reduce employee absenteeism and turnover rates, and increase work vitality and productivity (Aldana, 2001; Baicker, Cutler, & Song, 2010; Pelletier, 2011; Goetzel & Ozminkowski, 2008). Therefore, businesses must provide safe and healthy strategies or cultures to achieve organizational safety (Koh & Sebelius, 2010; Goetzel et al., 2012; Anderko et al., 2012). For example, Sedani et al. (2019) explored the trends and obstacles of organizational safety policies; Cox et al. (1998) proposed the model of safety culture; and Clarke (2006)'s research found that organizational safety culture was related to employee unsafe behavior. The second part is the managerial level. Managers' supervision and leadership also affect the effectiveness of occupational safety; however, there have been few empirical studies in this area (Sedani et al., 2019; Zhang et al., 2021). The third part is that employee safety behaviors may reduce the incidence of occupational injuries and work accidents, and also increase employee job

COVID-19 and Food Delivery Employees' Workplace Safety

satisfaction, which is supported by some studies (e.g., Zhang et al., 2021; Game, 2007).

As mentioned above, the discussion and research on occupational safety are still quite scarce. Most contemporary studies focus on the discussion of organizational safety strategies and employee safety behaviors in different industries, without in-depth discussions on employees in specific industries. In fact, the needs of occupational safety vary greatly across industries. This constitutes the primary research gap. On the other hand, environmental differences or changes also affect the importance of occupational safety, which has been less analyzed and understood by past research. Finally, whether the safety actions of organizations and managers will change employees' work attitudes or behaviors is also a rarely studied by related researchers, but it is important for enterprises to actively carry out occupational safety management.

Based on these research gaps, this study first focuses on special industrial workers--food delivery employees as the main research object, because their work must be exposed to the risks of the external environment for a long time, and they have frequent contact with different customers, thus increasing the risk of traffic accidents and the possibility of disease/infectious diseases. Second, this study incorporates environmental change factors---the background of COVID-19, which has spread to most areas of the world since its outbreak at the end of 2019. It has been more than two years since then, and the number of confirmed diagnoses, deaths, and treatment in various countries and regions have continued to accumulate and rise. This infectious disease threatens the occupational safety of corporate employees, especially those in constant contact with others. Their safety not only affects the preservation of organizational resources and smooth operation but also affects the integrity of many families and the development of the national economy. From the perspective of human resource development (HRD), the promotion of occupational safety is an important cornerstone of social stability and sustainable enterprise operations. Effectively reducing occupational injuries and improving employees' work safety during a pandemic is currently important topic. Even so, COVID-19 has also opened up an important market for food delivery services in many countries worldwide. Because of the panic and danger of the pandemic, many people prefer to buy food to eat at home to reduce social distancing and the spread of the virus (Tran, 2021; Pal et al., 2021). This study also explores organizational-level variables (safety training) and management-level variables (safety leadership) of occupational safety, and hopes to understand how these factors affect food delivery employees' job attitudes and behaviors to better promote related enterprises to pay attention to and actively practice occupational safety management.

According to the perspective of HRD, organizations can improve employees' positive work attitudes and behaviors through internal occupational safety training and development to achieve organizational goals and performance (Tahsildari & Shahnaei, 2015). In other words, the safety decisions and actions of organizations and managers profoundly impact employees' job attitudes and behaviors. One of the important reasons for occupational accidents/injuries is improper command and coordination by managers (Zohar, 1980; Lee, Lee, & Shih, 2008). Therefore, when managers/leaders do not conduct safety inspections and leadership, employees are prone to dangerous work behaviors, dangerous positions/places, improper use of personal protective equipment, and so on, which are all inadequately guided and protected by managers. Hence, it is easy for them to be dissatisfied and unhappy, reducing their well-being. In contrast, when managers pay attention to and actively guide employees to work safely, employees' well-being and satisfaction increase (Clarke, 2006). On the other hand, due to the rapid spread and long incubation period of COVID-19, if organizations can provide various regular safety trainings to delivery employees, it will improve their job satisfaction and well-being (Meenakshi & Sinha, 2019; Bhattacharya, 2018). In addition, when managers ensure employees are safe at work, their well-being increases, which in turn improves their job performance and productivity and even enhances customer citizenship behavior (CCB) (Yang et al., 2015). In other words, organizations' safety management is an internal marketing behavior that improves employee well-being, and which is extended to external marketing behavior, making employees voluntarily share happiness with more customers and provide more and better service customer behaviors (Wright, Cropanzano & Bonett, 2007). In addition, when organizations implement occupational safety training, the safety awareness and hygiene/health actions of personnel

COVID-19 and Food Delivery Employees' Workplace Safety

at all levels of organizations become clearer and more accurate, which helps managers/leaders in safety supervision and leadership more efficiently and greatly improves employees' perceptions and feelings of the organization's caring and value, thereby improving their positive work attitudes, such as job satisfaction, organizational commitment, organizational trust, and employee well-being (Hartline, Maxham & Mckee, 2000; Dimitriades, 2007). In other words, safety training strengthens the positive link between safety leadership and employee well-being.

Based on the broaden-and-build theory, employees' positive emotions (e.g., happiness, contentment, favorability, and love) improve their work coping abilities and job skills (Fredrickson, 1998). That is, happy employees generate happy sharing and value co-creation behaviors, including improving service quality, often focusing on customer needs, and adding additional service behaviors (Anderson et al., 2013; Hau & Thuy, 2016; Huang & Lin, 2021). In addition, happy employees tend to be loyal to organizational affairs and interests; they take the initiative to meet customer needs, serve customers kindly, are willing to solve different customer needs and problems, and show higher service quality (Dimitriades, 2007; Brady & Cronin, 2001; Bettencourt, Gwinner & Meuter, 2001; Wilches-Alzatz & Jeffrey, 2016). Thus, numerous studies have confirmed that job satisfaction enhances CCB (Weikamp & Göritz, 2016; Donovan, Brown & Mowen, 2004). However, recent scholars have been more supportive that happy employees produce more CCB (Abu Bakar, & McCann, 2016; Podsakoff et al., 2003; Chen, Dai, & Fang, 2010; Chien-Jung, 2017).

Finally, due to the ever-changing and fierce competition in the food delivery industry, the success of food delivery companies is often determined by customers' feelings, satisfaction, and loyalty. Therefore, improving service quality and CCB is crucial for the survival of food delivery companies; it is also the main competitive advantage (Prabowo & Nugroho, 2019; Tran, 2021). This study mainly focuses on the delivery employees and their customers of food delivery companies in special industries in the COVID-19 environment. The study adopts a three-wave longitudinal research design to detect how one of the organizational internal marketing activities (occupational safety management) expands to external marketing benefits (improving service quality and /CCB), that is, testing how the organizational HRD program (safety leadership and safety training) positively contributes to employee well-being, thereby enhancing service quality /CCB. The results of this study contribute to and inspire occupational safety management in special environments and industries, effectiveness of HRD strategies, and the application of broaden-and-build theory. The model relationship is illustrated in Figure 1.

2. LITERATURE REVIEW

2.1 Safety leadership and employee well-being

Current research on workplace safety can be seen from human error at the individual level. According to Heinrich's (1959) domino theory, human factors such as managers' improper supervision, colleagues' failure to coordinate, and personal errors, may generate work accidents and occupational disasters. It is like a domino effect; as long as one of the factors dumps, it causes other people to fall along with it. For example, managers' incorrect guidance may cause numerous employees safety hazards and accidents. Some scholars have emphasized the importance of role theory in safety performance (Jackson & Schuler, 1985; Iverson, Olekalus, & Erwin, 1998). If people in different job roles show positive safety promotion and understand the safety behaviors/tasks of their job responsibilities, it will help improve safety performance, reduce accidental injuries and conduct effective safety diagnoses and improvement (Terry, 1994). Therefore, several scholars believe that manager safety guidance and leadership are the main factors in ensuring occupational safety (Alexander et al., 1994; Clarke, 2006; Glendon & Litherland, 2001).

From the perspective of safety promotion by managers/leaders, some scholars have emphasized the influence of managerial communication on employee safety/unsafe behavior (Harper et al., 1997; Tan-Wilhelm et al., 2000; Hofmann & Morgeson, 1999; Mearns, Whitaker, & Flin, 2003). For example, Parker, Axtell, and Turner (2001) used a longitudinal cross-sectional study of 161

COVID-19 and Food Delivery Employees' Workplace Safety

manufacturing employees and found that manager communication quality is related to employee safety behavior. Zohar (2002) found that a supervisor's safety communication reduces the probability of employee accidents. On the other hand, manager safety awareness (i.e., the idea that the job must be safely established in the manager's mind) is also important. For example, Clarke (1999) and Arboleda et al. (2003) found that safety awareness of employees at different organizational levels, including top managers, middle-level supervisors, and workers, has different effects on employee work safety. Finally, several researchers found that managers' safety commitment (i.e., a manager's emotional loyalty and involvement with safety norms and requirements) enhances employees' job satisfaction and positive work emotions (Cox & Cheyne, 2000; Cox et al., 1998; Cheyne et al., 1998; Zohar, 2002; Parker et al., 2001). Thus, most previous studies have explored managers' safety communication, emotions, and thoughts conveyed, and few studies have explored managers' actual safety guidelines and actions. Coupled with the prevalence of food delivery services during the COVID-19 period, this has also caused more concerns and worries about the occupational safety of delivery employees (Wire, 2020).

According to the perspective of HRD, organizations or managers can improve their employees' knowledge, skills, and abilities using education and guidance, thus bringing positive changes in their job attitudes and achieving job efficiency and effectiveness (Tahsildari & Shahnaei, 2015; Hidayat & Budiartma, 2018). In other words, manager safety leadership is the key to improving and implementing employees' safety attitudes and behaviors. Safety leadership is defined as-- a supervisor/leader directing and influencing subordinates or team members to achieve safety requirements and goals during their work hours. To maintain, improve and promote employee occupational safety, managers should not only guide employees to correct safety norms, procedures, and standards, but also personally demonstrate and supervise employees' safe working conditions, such as the correct use of the equipment and wearing safety protective equipment, compliance with safe work rules and procedures, and the reduction of hazards posed by improper operation, which can increase employees' job security and well-being (Oliver et al., 2002; Tomas, Melia, & Oliver, 1999; Neal & Griffin, 2006). Therefore, the safety leadership of managers reduces the frequency of work-related accidents, especially in jobs that are prone to accidents, making employees feel valued by supervisors. This creates an understanding of job meaning, and generates psychological well-being and satisfaction (Clarke, 2006; Clarke & Cooper, 2004). Guest and Conway (2004) also argue that employee well-being comes from six key areas: manageable workload, job control, supervisor support, positive work relationships, role clarity and correctness, and the control and participation of job change. Therefore, this study proposes the following hypotheses:

H1: Safety leadership is positively related to employee well-being.

2.2 Safety training and employee well-being

Another focus of occupational safety is at the organizational level, where organization-related policies and actions have a significant impact on employee health, job safety, and occupational injuries (Sedani et al., 2019; McLellan et al., 2015; Tamers et al., 2019). Previous studies have shown that the safety culture/climate enhances safety performance. For example, Oliver et al. (2002) found that safety culture is related to employee safety participation, and Thomas and Fergal (2001), Clarke and Taylor (2018), and Grill et al. (2017) found that the safety climate is related to employee safety behavior. However, safety practices play an important role in safety performance. For example, several scholars have pointed out that establishing a safety management system can achieve cooperation and reminder of employees' work safety and reduce the probability of accidents (Senge, 1990; Stephen, 1990). Some scholars have also emphasized that when organizations do not build a safety management system, it may make delivery employees shuttle between lanes and forget to turn on the direction lights or drive illegally. This risky behavior is likely to lead to car accidents, service delays, and organizational compensation issues. Therefore, an organizational safety management system can also control and optimize the safety behavior of delivery employees. Several scholars have also discussed how organizational safety and health policies help improve employees' safety attitudes and perceptions of the work environment (Sedani et al., 2019; Clarke, 2006).

COVID-19 and Food Delivery Employees' Workplace Safety

In summary, the topic of organizational safety training has rarely been explored in previous research. Safety training refers to employers providing employees with the necessary safety and health education and training for work and disaster prevention (Schwatka et al., 2020). In Zhang et al. (2021)'s organizational model of unsafe work, safety training is a major organizational safety practice work; when the organization provides various employee safety training, it provides employees knowledge and actions related to psychological and physical safety, and successfully changes their psychological mechanisms, including reducing job insecurity, anxiety, and stress (Lee, Huang & Ashford, 2018; Hu, 2008), thus increasing job satisfaction, employee well-being, and organizational/self-identification (Shoss, 2017; Caroli & Godard, 2016). During the COVID-19 pandemic, food delivery has become a high-risk job (including the increased chance of traffic accidents and virus infection); therefore the occupational safety training of delivery employees has become very important and necessary. Employers must implement intensive and continuous employee safety training to reduce the occurrence of occupational hazards; however, safety training for this particular job is seldom evaluated and tested (Wire, 2020). As Codrier (2005) emphasized, the lack of organizational safety training leads to frequent work accidents, employee depression, and unhappiness.

HRD can be divided into three parts: training, education, and development, to improve the positive change in an organization's collective psychology and behavior, in which training is provided to improve and grow employees' skills and abilities according to the existing job situation (Archana & Krishna, 2016; Rumman, Al-Abboadi & Alshwabkeh, 2020). Safety training is a core component of modern safety management—replacement, to make employees' daily work operations safer and more efficient, and reduce the probability of accidents and injuries (Burke et al., 2006; Griffin & Neel, 2000). Therefore, safety training is different from general occupational training; the former not only guides the normalization and specification of safe behaviors, but also provides strong prevention and response to special job changes (Casey et al., 2021). Laird (2021) advocated that the safety training of delivery work includes--communication and understanding of customer information; understanding of roads and traffic routes and rules; hygiene and cleanliness of delivery employees; delivery process safety, temperature, hygiene, and proper handling; and customer interaction etiquette. In other words, when the organization conducts employee training for occupational safety, it is easier for employees to feel their organization's sincere care, support, and help; achieve work goals and personal safety/achievement; and reduce the likelihood of job injury, which also increases employee well-being and positive job evaluations (Sedani et al., 2019). Therefore, this study assumes:

H2: Safety training is positively related to employee well-being.

2.3 Employee well-being and service quality

In a rapidly changing and competitive market environment, service quality is the key to achieving organizational performance and success, as products are easy to repeat, whereas service levels cannot (Yang et al., 2015). Service quality is usually the main competitive weapon in the service industry, and also an important factor in continuously attracting and retaining customers (Palmer, 2001). According to the SERVQUAL model formed by the expectancy-disconfirmation paradigm, service quality is defined as the gap between expectation and perception; that is, customers feel the gap between services after contacting service workers. The larger the gap, the higher is the service level (Yang et al., 2015). Service quality includes five dimensions: tangibles (physical facilities, equipment, and appearance of service employees), reliability (ability to perform the promised service dependability and accurately), responsiveness (willingness to help customers and provide better service), assurance (employees' knowledge and courtesy and their ability to inspire customer trust and confidence), and empathy (caring and individualized attention for customers) (Abzari, Ghorbani & Madani, 2011).

Many researchers have confirmed that service quality comes from satisfied customers; that is, the more satisfied customers are, the better the service they perceive from service personnel (Yang et al., 2015; Abzari & Ghajali, 2011). However, in recent years, many scholars have started paying attention to the impact of employee well-being on service quality. Employee well-being refers to

COVID-19 and Food Delivery Employees' Workplace Safety

employees' overall evaluation of their work experience and abilities, including their physical, psychological, and emotional well-being (Cartwright & Cooper, 2009; Currie, 2003). Happy employees are productive, generally healthier, have better interpersonal relationships, and perform better at work (Lyubomirsky, King & Diener, 2005; Page & Vella-Brodrick, 2009). Employees with high well-being have positive moods and good psychological qualities, and they take the initiative to solve the needs and problems of different customers through optimistic self-awareness and self-confidence (Odeh & Alghadeer, 2014). Happy employees also tend to spread happy messages, they actively provide high-quality services to customers in the service process, so that customers feel as happy as they do (Yang et al., 2015).

According to the broaden-and-build theory, Fredrickson (1998) advocates that employees' positive emotions (happiness, contentment, pride, love, etc.) can improve their job creativity, coping ability, and coping skills. More specifically, employees' positive emotions (e.g., employee well-being) can continue to accumulate psychological, social, intellectual, and physical resources to expand new thinking and actions to cope with setbacks, adversity, and trials at work (Nickerson, 2007; Fredrickson & Joiner, 2002; Wang, Wang & Sun, 2020). Therefore, happy employees are more positive and flexible and can handle diverse and complex customer requirements better than ordinary employees; thus their service quantity and quality are higher. So, the third assumption is as follows:

H3: Employee well-being is positively related to service quality.

2.4 Employee well-being and CCB

In the past, many organizations have attached great importance to employee relationships, thus emphasizing organizational citizenship behavior (OCB) to encourage employees to help each other unconditionally. These organizations are mostly motivated by organizational motivation strategies to stimulate OCB (Hart et al., 2016; Chan & Lai, 2017). However, in recent years, an increasing number of enterprises have begun to pay attention to customer relationship management and customer value, which has led to the discussion on CCB (Chen et al., 2010). CCB refers to the behavior of service workers to voluntarily serve customers outside their organization's rules and regulations to effectively complete the service process and achieve organizational goals, most of which are not directly motivated by organizational incentive policies (Bove et al., 2009; Groth, 2005), including remembering customers' names, traits, and preferences; prioritizing customer problems; showing friendly service words and deeds/special treatment; providing customers with events and messages relevant to their organization; and proactively building a special friendship with customers (Dimitriades, 2007; Curth, Urich, & Benkenstein, 2014). Previous literature confirms that CCB is mainly derived from customer satisfaction (Bitner, Booms, & Tetreault, 1990; Carlson, 1987; Bowen & Lawler, 1992), positive customer emotion (Smith, 2013; Krishna, Lazarus, & Dhaka, 2013; Hussain, 2016; Claffey & Brady, 2014), customer appreciation and preference (Hasan et al., 2014; Dimitriades, 2007), and customer loyalty (Wilches-Alzate & Jeffrey, 2016; Bettencourt et al., 2001). These findings support earlier relationship marketing and marketing theories that to maintain long-term profitable customer relationships, the more positive attitudes/behaviors a customer exhibits, the harder the service workers will work to serve those customers more and better (e.g., enhancing CCB), which is also a targeted marketing tactic (Zhang et al., 2016; Samiee, Chabowski, & Hult, 2015; Daukseviciute & Simkin, 2016; Shang & Lin, 2010).

However, marketing scholars have recently started focusing on co-participation and co-value creation between employees and customers (Bettencourt et al., 2001). This concept differs from the traditional behavior modification theory (i.e., monetary rewards can encourage service workers to increase CCB) (Shore & Wayne, 1993; Wayne, Shore & Liden, 1997), implying that service workers with high satisfaction/well-being are more willing to enhance CCB (Huang & Lin, 2021; Dimitriades, 2007). In other words, when employees feel happy and pleasure, they are more emotionally invested in their work, no longer regard themselves as ordinary employees, and have a strong personal willingness to provide more and better services to customers to demonstrate their excellent value, and improve their sense of work achievement and job meaning. This means that the personal value of employees is reflected

COVID-19 and Food Delivery Employees' Workplace Safety

in the process of participating/creating customer value (Donavan et al., 2004).

On the other hand, according to the broaden-and-build theory, employee positive emotion is a lasting psychological enhancement and psychological resilience, which helps improve complex job skills and problem-solving skills (Fredrickson, 2001); thus, the theory clearly describes a with-person across-occasions psychological process, which can also be called with-occasion across-persons theory (Fredrickson et al., 2008). That is, employee well-being is an important positive emotion that can improve employees' coping ability and flexibility in the face of different customer requirements and also enables them to proactively provide additional service behaviors (e.g., CCB) in response to different service situations. For example, Paul et al. (2019) found that employees' subjective well-being and CCB have a positive relationship, and Van Katwyk et al. (2000) found that the well-being of university staff is related to prosocial behavior and OCB. Therefore, this study hypothesizes:

H4: Employee well-being is positively related to CCB.

2.5 The mediating role of employee well-being

In recent years, owing to the increasingly strict regulations related to food delivery work and the high turnover rate of delivery employees, food delivery companies have begun to strengthen the safety leadership and safety management of delivery employees (Meenakshi & Sinha, 2019; Inamdar & Shukla, 2018). It includes confirmation by supervisors of route safety and hygiene measures for each delivery job, good allocation, control of delivery staff working hours and shifts in compliance with health standards, as well as monitoring of various basic safety behaviors (regular disinfection, safe delivery rules, procedures, and body temperature measurements) (Tran, 2021). These safety guidelines and protective measures can motivate delivery employees to work harder, reduce work errors, and increase average their productivity (Sigh, 2007; Gohari et al., 2013). Therefore, non-financial rewards are strongly correlated with job performance (Ashraf, Bandiera, & Jack, 2014; Osibanjo et al., 2014).

From the perspective of internal and external marketing activities, Mishra (2010) claimed the perspective of ultimate marketing; employees are regarded as internal customers to serve/satisfy, which naturally enables them to best serve external customers. As Drake, Gulman and Roberts (2005) argue, organizational strategies should be adopted to make employees fall in love with their corporate image and brand. Employees will then take action to make customers fall in love with the company. In other words, when supervisors provide safety leadership, it is conducive to establishing internal marketing, so that employees feel that supervisors' value, friendliness and care, which in turn increases their satisfaction/well-being (internal marketing benefits), and extends or spills over to enhance customer service behavior and CCB (external marketing benefits) (Nthebe, Burkulzen, & Schutte, 2016; Yang, Huang & Wei, 2015). Thus, if the strategies and actions of supervisors/leaders aim to build good internal relationships, employee well-being increases, and employees are encouraged to engage in more CCB with a mindset of giving back and rewarding their supervisors/leaders (Wilches-Alzate & Jeffrey, 2016). From the perspective of leadership, when supervisors/leaders provide leadership that benefits their employees, this supportive leadership or good supervisor-subordinate interactive relationship is an invisible asset that makes employees feel happy and joyful at work, which in turn promotes better service performance or CCB (Schumann et al., 2014; Thompson et al., 2016). Therefore, employee-supervisor interactions often determine employee-customer interactions (Chien-Jung, 2017; Shang & Lin, 2010). Taking food delivery work as an example, when supervisors provide various safety guidance and assistance to their delivery employees, they gain many psychological benefits, such as improving their job insecurity, being valued, enhancing their sense of work achievement, satisfaction, and job meaning, the establishment of identification/trust between employees and supervisors, and the reduction of job anxiety/stress. These also make delivery employees more willing to take risks, not afraid of difficulties, and confidently provide customers with more and better services. Therefore, this study predicts the following:

H5: Employee well-being mediates the relationship between safety leadership and CCB.

COVID-19 and Food Delivery Employees' Workplace Safety

2.6 The moderating role of safety training

Most employees' occupational injuries result from unsafe behaviors and conditions, which are related to organizational safety management. In other words, improper construction of an organizational safety system or insufficient safety education and training may easily lead to work accidents and dangers. Recent literature suggests that establishing an organizational safety environment is a key source of workplace safety (Tomas & Oliver, 1995; Flin et al., 1996; Cheyne et al., 1998). When an organization has established a safety culture or safety education and training, coupled with the support, guidance, and practice of managers/leaders on employee safety behavior, employee work safety can be more effectively promoted (Neal, Griffin, & Hart, 2000; Clarke, 2006; Gillen et al., 2002). In other words, the decisions and actions of organizations and supervisors profoundly impact the effectiveness of occupational safety management.

From the HRD perspective, organizational training and development programs help improve employees' job abilities and boost positive job attitudes/behaviors (Rumman, Al-Abbadi & Alshawabkeh, 2020; Archana & Krishna, 2016). There are many forms of HRD, including on-the-job training, supervisor mentoring and leadership, apprenticeship programs, simulation scenarios, E-learning, curriculum instruction, self-directed learning, case studies, role-playing, and systematic job rotation. In terms of occupational safety, safety education and training is the umbrella for employees (Clarke, 2000). When organizational safety training and development is more substantial and diversified, it increases the attention and implementation of work safety for all organizational staff, thus enhancing employee well-being, job security, and job/service performance (McCoy et al., 2014). Taking the food delivery industry as an example, mixing more than two safety management measures, such as safety training, safety leadership, and safety culture/climate, can better meet the job expectations and treatment of delivery employees, and also enhances their job satisfaction, well-being, and willingness to stay (Meenakshi & Sinha, 2019). Therefore, this study concludes that based on organizational safety training, the safety leadership by supervisors/leaders significantly increases employee well-being.

H6: Safety training moderates the relationship between safety leadership and employee well-being in such a way that the relationship between safety leadership and employee well-being becomes stronger as safety training increases.

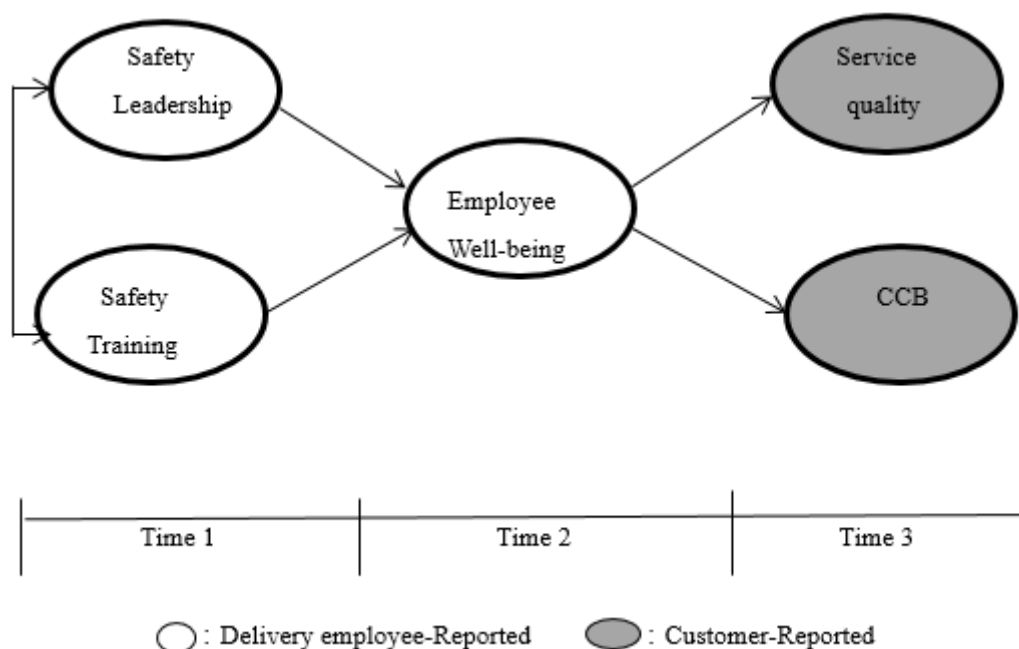


Figure 1. Conceptual model

COVID-19 and Food Delivery Employees' Workplace Safety

3. STUDY

3.1 Participants and procedure

This study uses purposive sampling to collect 498 delivery employees and 600 customers from 2 food delivery companies (i.e., Foodpanda and Uber Eats) in Taiwan. In fact, in food delivery companies, customer places an order on the App, enters the companies' order systems, and the supervisors/leaders arrange suitable delivery employees to provide service and ensure service quality and are responsible for normally employee leadership, education, and training, performance evaluation, and reward and punish work. In the study, each delivery employee has 1 to 2 customers to participate in the sampling, and among them, 102 delivery employees were evaluated by 2 customers. The human resource manager of each company compiled a manual for delivery employees and their customers with delivery employees have served in 3 days, and then the study issued this research questionnaire with this information. Participants are willing to cooperate and confirm that their answers are confidential. To avoid common method variance, the study made a three-stage and two-source survey.

At Time 1, the study distributed 600 delivery employee questionnaires to evaluate safety leadership, safety training, job commitment, and employee demographic variables, and 578 questionnaires were collected. Two months later, the study again distributed these 578 delivery employees at Time 2 to assess employee well-being. A total of 517 questionnaires in Time 2 were collected. Two months after the completion of the Time 2 survey, the study distributed 517 delivery employees' 700 customer questionnaires in Time 3 to assess service quality and CCB. A total of 615 customer questionnaires in Time 3 were collected. Some scholars also claimed that temporal separation and different sources are the most effective strategies for reducing common method bias (Podsakoff, et al., 2003; MacKenzie, Podsakoff, & Jarvis, 2005).

According to the final survey of delivery employees and their customers, 517 delivery employees and 615 customers in the target organizations did participate in the study, so the response rates were respectively 86% and 88%. In the questionnaire received, 19 delivery employee questionnaires and 15 customer questionnaires were excluded because the answers to some items were blank. Therefore, the available number of questionnaires in this study is 498 delivery employee questionnaires and 600 customer questionnaires.

Among the 498 delivery employees who participated in the study, 58% were men and 42% were women. Regarding age, the majority (39%) of the survey employees are between 20-30 years old, with an average age of 25 years (sd= 3.6). The average job tenure of the survey employees was 3 years (sd = 2.1). 12% have marital status. Approximately 39% of survey employees have a bachelor's degree, while 12% of survey employees have obtained a master's diploma education. Of the 600 customer samples, approximately 48% were male, and the average age was 30 years (sd = 5.2). 42% have marital status. Approximately 36% of customers have a bachelor's degree, while 11% of customers have obtained a master's diploma in education.

3.2 Measures

All the questionnaires in this study are translated from the relevant original research opinions or questionnaires and developed into Chinese questionnaires. Owing to national and cultural differences, this study modified these questionnaires, as well as the relevant reliability and validity tests. Every questionnaire was rated using a five-point scale from 1=strongly disagree to 5=strongly agree.

3.2.1 Safety leadership

This study referred to the relevant questionnaire of Aitchison (1994) to develop and create the safety leadership scale. The main purpose of which is to measure delivery employees' evaluation of the extent of they feel their supervisor often provides safety guidance and demonstrations during normal and the COVID-19 periods. After the analysis of reliability and validity, there are a total of 9 items in this dimension, including general safety leadership (6 items) and pandemic safety leadership (3 items). For example, "My supervisor often demonstrates safe work methods and actions."; "My supervisor often values physical condition and safety protection for COVID-19." ($\alpha=0.90$).

COVID-19 and Food Delivery Employees' Workplace Safety

3.2.2 Safety training

This study referred to the relevant opinions of Clarke (2006) and Zhang et al. (2021) to develop and create the safety training scale. The main purpose of which is to measure delivery employees' evaluation of the extent of they feel their organization often provides safety education and training during normal and the COVID-19 periods. After the analysis of reliability and validity, there are a total of 8 items in this dimension, including general safety training (4 items) and pandemic safety training (4 items). For example, "My organization often educates employees on correct safety attitudes and behaviors."; "My organization often arranges various safety and epidemic prevention training courses for COVID-19." ($\alpha=0.90$).

3.2.3 Employee well-being

This study referred to the relevant questionnaire of Warr (1990) to develop and create the employee well-being scale. The main purpose of which is to measure delivery employees' evaluation of the extent of their overall quality evaluation of work experience and competency. After the analysis of reliability and validity, there are a total of 15 items in this dimension. For example, "I feel my work is beautiful." ($\alpha=0.91$).

3.2.4 Service quality

This study referred to the SERVQUA scale of Parasuraman, Zeithaml, and Berry (1988) to develop and create the service quality scale. The main purpose of which is to measure customers' evaluation of the extent of their service expectations and their perception of service gaps after their contact with delivery employees. After the analysis of reliability and validity, there is a total of 15 items in this dimension. For example, "When I have problems, the delivery employee will express sincere willingness to solve my problems." ($\alpha=0.90$).

3.2.5 CCB

This study referred to the relevant questionnaires of Dimitriadis (2007) and Betterncourt et al. (2001) to develop and create the CCB scale. The main purpose of which is to measure customers' evaluation of the extent of delivery employees spontaneously provide various good service behaviors, and these behaviors are not restricted by their work contract, which can effectively promote organizational performance. After the analysis of reliability and validity, there is a total of 7 items in this dimension. For example, "The delivery employee usually has taken the initiative to provide me with some additional services." ($\alpha=0.90$).

3.2.6 Control variables

The study controlled for employee demographic variables (gender, age, job tenure (measured in years), marital status, and education level) as prior studies have demonstrated that these demographic variables may influence employees' safety awareness and work behaviors (e.g., Tomas et al., 1999; Cooper, 2002; Cheyne et al., 2002). The study also controlled for job commitment since it impacts employees' safety awareness, acceptance, and work attitudes/behaviors (e.g., Clarke, 2006; Wang, Wang, & Xia, 2018; Game, 2007). Next, this study uses the three-variable contingency tables to confirm that the above-mentioned control variables are necessary isolated factors or manipulated specific factors.

3.2.7 Reliability and validity analysis

To make the scale of this research reliable, the reliability analysis is carried out to determine whether the research results are consistent. As shown by the diagonal values in Table 2, the Cronbach's α value of each dimension is above 0.8, indicating good reliability. In terms of validity analysis, first, the study invited some human resources professors and HR supervisors to review and modify the questionnaire items, so that they questionnaire items have expert validity. Then, the study conducted a pretest. The first and second/third stage questionnaires were anonymously filled out by 100 delivery employees/customers, and a single-sample t-test was performed. The analysis results showed that the average number was between 3-4, and the t-value and p-value reached a significant level, and Cronbach's α is above 0.8, indicating that these testers can understand the content of questionnaires and are willing to answer, and give feedback on the missing parts so that this study can make corrections. Of the 100 delivery employees

COVID-19 and Food Delivery Employees' Workplace Safety

who participated in the pretest, 56% were men, and 44% were women. In terms of age, the majority (41%) of the tested employees are between 20-30 years old, with an average age of 24 years (sd=3.4). The average tenure of the tested employees was 3 years (sd = 2.3). 15% have marital status. About 41% of the tested employees have a bachelor's degree and 10% have a master's degree. Of the 100 customers who participated in the pretest, approximately 46% were male, with an average age of 33 (sd = 5.4). 38% have marital status. About 35% of tested customers have a bachelor's degree and 13% have a master's degree.

Finally, the study performed exploratory factor analysis (EFA) on all samples. As shown in Table 1, the KMO of each dimension is greater than 0.8, and Bartlett's sphericity test has reached a significant level, indicating that the data is suitable for EFA. After using the maximum orthogonal variation method, the factor loading of each item is greater than 0.5, and the overall interpretation of each dimension is also quite high. In addition, composite reliability (CR) is greater than 0.7, and the average variance extracted (AVE) is greater than 0.5 and less than 3.3, indicating that convergent validity and discriminant validity between dimensions are better. Thus, the total validity of the study is good and meets related standards.

Table 1. The results of EFA

Dimension	Item	KMO	Bartlett's sphericity test	Factor Loading	Overall interpretation (%)	CR	AVE
Safety leadership	1-9	0.86	t=734.82 (p<.01)	(.612)(.733)(.812)(.644)(.735) (.687)(.812)(.766)(.715)	65.16	0.82	0.56
Safety training	1-8	0.87	t=652.33 (p<.05)	(.612)(.733)(.812)(.644)(.765) (.822)(.665)(.734)	57.87	0.76	0.53
Employee well-being	1-15	0.88	t=852.33 (p<.01)	(.611)(.616)(.612)(.618)(.612) (.615)(.612)(.617)(.614)(.613) (.618)(.616)(.623)(.712)(.612)	83.21	0.81	0.65
Service quality	1-15	0.86	t=845.62 (p<.01)	(.606)(.612)(.623)(.615)(.712) (.623)(.611)(.621)(.605)(.612) (.610)(.611)(.612)(.623)(.613)	83.09	0.83	0.58
CCB	1-7	0.88	t=648.25 (p<.01)	(.723)(.610)(.622)(.715)(.712) (.613)(.622)	55.17	0.82	0.64
Job commitment	1-10	0.85	t=668.21 (p<.05)	(.710)(.612)(.605)(.612)(.610) (.612)(.610)(.623)(.705)(.611)	63.10	0.84	0.58

3.3 Confirmatory factor analysis

Structural equation modeling (SEM) is a multivariate statistical technique that integrates factor analysis and path analysis, which can detect various causal relationships (direct, mediating, and moderating effects) between multiple variables. Recently, SEM has also been frequently used for the statistical analysis of longitudinal research with repeated samples. Therefore, since this study is a longitudinal study, the data are replicated (that is, the same set of samples measured in different questionnaires at different time points). Thus, this study adopted SEM to examine changes in replicated samples at different time points and different research variables. First, the study conducted a confirmatory factor analysis (CFA) to assess the discriminant validity of the six variables used in this study (including safety leadership, safety training, employee well-being, service quality, CCB, and job commitment). According to the suggested method of Hall, Snell, and Foust (1999), this study merged the two dimensions of the highest and lowest factor loadings in order; and then, this study repeated the above practice until the single dimension finally produced seven indicators. From the nested structure of CFA analysis in Table 2, it can be found that the six-factor model ($\chi^2(354, 125)=467.82, p<.01$;

COVID-19 and Food Delivery Employees' Workplace Safety

RMSEA=0.05; CFI=0.95; TLI=0.94) fit the data better than the five-factor model ($\chi^2(345, 119)=587.66$, $p<.01$; RMSEA=0.15; CFI=0.89; TLI=0.81), the four-factor model ($\chi^2(312, 108)=943.88$, $p<.01$; RMSEA=0.23; CFI=0.71; TLI=0.76), three-factor model ($\chi^2(285, 95)=1043.55$, $p<.01$; RMSEA=0.28; CFI=0.65; TLI=0.52), two-factor model ($\chi^2(233, 77)=1565.23$, $p<.01$; RMSEA=0.34; CFI=0.55; TLI=0.45) and one-factor model ($\chi^2(121, 52)=2068.15$, $p<.01$; RMSEA=0.39; CFI=0.43; TLI=0.38). Therefore, the hypothetical model in this study is better than other alternative models, indicating that the degree of fit between the data collected in this study and the theoretical model is acceptable. Given these supportive results, the study then turned to the main study.

Table 2. The CFA results

Model structure	χ^2	df	χ^2/df	RMSEA	SRMR	CFI	TLI
Six-factor model ^a	467.82**	354	1.32	.05	.05	.95	.94
Five-factor model ^b	587.66**	345	1.70	.15	.16	.89	.81
Four-factor model ^c	943.88**	312	3.03	.23	.24	.71	.76
Three-factor model ^d	1043.55**	285	3.66	.28	.31	.65	.52
Two-factor model ^e	1565.23**	233	6.72	.34	.36	.55	.45
One-factor model	2068.15**	121	17.09	.39	.41	.43	.38

Note 1: a. The six-factor model includes: safety leadership, safety training, employee well-being, service quality, CCB, and job commitment; b. The five-factor model includes: "CCB and employee well-being", safety leadership, safety training, service quality, and job commitment; c. The four-factor model includes: "CCB, safety training and employee well-being", safety leadership, service quality, and job commitment; d. The three-factor model includes: "CCB, safety training, job commitment and employee well-being", safety leadership and service quality; e. The two-factor model includes: "CCB, safety training, job commitment, safety leadership and employee well-being", and service quality.

Note 2: ** $p < .01$

4. RESULTS

4.1 Descriptive statistics and correlations

Means, standard deviations, and zero-order correlations for all measures are presented in Table 3. First, the correlation coefficient values between the dimensions did not greater than 0.8, indicating that the problem of collinearity was not significant (Maruyama, 1998). Second, as expected, both safety leadership and employee well-being ($p<.01$), safety training and employee well-being ($p<.01$), employee well-being and service quality ($p<.01$), employee well-being and CCB ($p<.01$), job commitment and employee well-being ($p<.01$), and job commitment and CCB ($p<.01$) evidenced positively significant correlations.

Table 3. Correlation and Descriptive Statistics

Variables	Mean	SD	1	2	3	4	5	6
1. Safety leadership	3.79	1.03	(.90)					
2. Safety training	4.22	1.02	.11	(.90)				
3. Employee well-being	4.55	1.01	.46**	.43**	(.91)			
4. Service quality	3.61	1.12	.13	.13	.39**	(.90)		
5. CCB	4.12	1.05	.09	.15	.39**	.05	(.90)	
6. Job commitment	4.15	1.08	.14	.13	.36**	.04	.41**	(.90)

Note: * $p<.05$; ** $p<.01$ (two-tailed); N=498 for delivery employees, 600 for customers, and 2 for food delivery companies.

COVID-19 and Food Delivery Employees' Workplace Safety

Reliabilities are in parentheses.

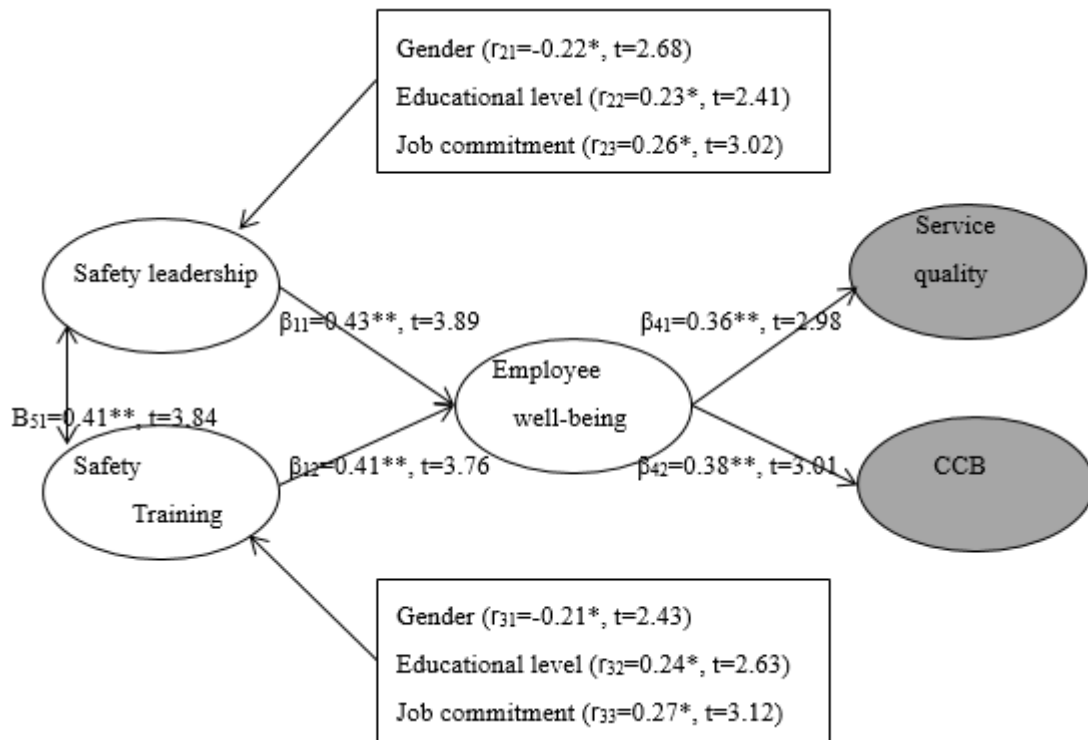
4.2 Testing of hypotheses

To test the hypotheses in Figure 1, the study used AMOS to perform SEM in Figure 2. First, in terms of model fit data, six-factor measurement model is fitting the data acceptably ($\chi^2(354, 125)=467.82, p<.01$; RMSEA=0.05; CFI=0.95; TLI=0.94). Hypothesis 1 states that safety leadership is positively associated with employee well-being. The result indicates that safety leadership positively and significantly influenced employee well-being ($\beta=0.43, p<.01$). Therefore, hypothesis 1 is supported. Hypothesis 2 states that safety training is positively associated with employee well-being. The result indicates that safety training positively and significantly influenced employee well-being ($\beta=0.41, p<.01$). Therefore, hypothesis 2 is supported. Hypothesis 3 states that employee well-being is positively associated with service quality. The result indicates that employee well-being positively and significantly influenced service quality ($\beta=0.36, p<.01$). Therefore, hypothesis 3 is supported.

Hypothesis 4 states that employee well-being is positively related to CCB. The result indicates that employee well-being positively and significantly influenced CCB ($\beta=0.38, p<.01$). Therefore, hypothesis 4 is supported. Hypothesis 5 predicts that employee well-being has a positive mediating effect between safety leadership and CCB. The result of the Sobel test indicated that the standardized indirect effect is significant, and the indirect impact of safety leadership on CCB through employee well-being is significant ($\beta=0.36, p<.01$). Therefore, hypothesis 5 is supported.

Hypothesis 6 states that safety training moderates the relationship between safety leadership and employee well-being, such that the relationship between safety leadership and employee well-being becomes stronger when safety training is higher. The result indicates that safety training moderates the relationship between safety leadership and employee well-being ($\beta_{51}=0.41, p<.01$). Tests of the simple slopes show that the relationship between safety leadership and employee well-being was positive and significant when safety training was at high levels (simple slope=0.26, $p<.01$), but the relationship was less significant at low safety training levels (simple slope=0.17, $p<.05$). As showed in Figure 3, safety leadership less plays an important role for delivery employees who had low safety training. However, safety leadership was a significant factor in employee well-being for delivery employees who had high safety training. Therefore, hypothesis 6 is supported. In control variables, gender ($r_{21}=-0.22, p<.05$), educational level ($r_{22}=0.23, p<.05$), and job commitment ($r_{23}=0.26, p<.05$) is significantly related to safety leadership. However, gender ($r_{31}=-0.21, p<.05$), educational level ($r_{32}=0.24, p<.05$), and job commitment ($r_{33}=0.27, p<.05$) is significantly related to safety training. These results indicated that females, high educational levels, or high job commitment employees more perceive and accept safety leadership and safety training.

COVID-19 and Food Delivery Employees' Workplace Safety



Standardized indirect effect:

Safety leadership Employee well-being → CCB $\beta = 0.36^{**}, t = 2.78$

Figure 2 Structural model results



Figure 3 Interaction of Safety Training

5. CONCLUSION

When service workers frequently contact and interact with customers, their response and coping skills directly determine their service levels and customer satisfaction (Huang & Lin, 2021). From the perspective of internal and external marketing activities, when organizations create happier employees (internal marketing benefits), they produce more positive behaviors to satisfy customers (external marketing benefits) (Nthebe, Barkhuizen, & Schutte, 2016). Therefore, this study considers food delivery employees with a high probability of occupational disasters as the research object and emphasizes that enterprises can achieve good occupational safety management through HRD strategies (safety leadership and safety training), which can not only create more happy employees but also further enhance their service quality with CCB. Therefore, the result of the study indicates that: (1) Safety leadership positively affects employee well-being; (2) Safety training positively affects employee well-being; (3) Employee well-

COVID-19 and Food Delivery Employees' Workplace Safety

being positively affects service quality; (4) Employee well-being positively affects CCB; (5) Employee well-being mediates the relationship between safety leadership and CCB; and (6) Safety training moderates the relationship between safety leadership and employee well-being. These findings generate several meaningful theoretical and practical implications.

5.1 Implication for theory and research

This study is the first to apply the concept of workplace safety management to a specific industry (i.e., the food delivery industry), so it makes an important contribution and value to the literature gap on HRD practices (safety leadership and safety training) in this industry. In past occupational safety management topics, organizational and human factors have been so important that most researchers have explored only the impact of safety culture/personal safety behaviors on safety performance (Dimitriadis, 2007). However, this study attempts to incorporate new environmental change factors (the context of COVID-19), organizational factors (safety training) and managerial factors (safety leadership) to conduct a more comprehensive discussion and research, to deeply explore the specific industry's occupational safety management. There are very few empirical studies in this area, so the findings of this study are creative and valuable.

On the other hand, from the HRD perspective, organizational internal training and development policies help to enhance employees' knowledge, ability and skills, and increase their positive job attitudes (Archana & Krishna, 2016; Tahsidari & Shahnaei, 2015) However, in the past, most of the employee education and training that academic and practical circles focused on was on-the-job training, off-the-job training and job change/rotation training, paid little attention to the guidance and training of occupational safety. Therefore, this study conducted HRD practical work (safety leadership and safety training) on occupational safety issues, and found that safety leadership and safety training can indeed improve employees' positive job attitude (employee well-being). Combining the two HRD practical work greatly enhances employee well-being. Therefore, the results of this study have important theoretical and practical implications.

Much of the early literature on the antecedents of service performance supports the need for service workers to make financial and emotional efforts and invest in target customer groups (Kim, 2009; Luo & Homburg, 2007; Macintosh, 2007). However, scholars have recently started focusing on the impact of service workers' positive job attitudes on service performance (Chien-Jung, 2017). According to the broaden-and-build theory, positive moods (e.g., happiness, joy, and well-being) of service workers can improve their ability and skills to deal with different customer problems (Nickerson, 2007; Fredrickson & Joiner, 2002). However, this novel theory has rarely been analyzed and discussed in depth for specific environments and industries. The results of this study support the arguments of these emerging scholars, emphasizing that job performance of happy delivery workers in the context of COVID-19 is better than that of others and also has better scores in service quality and CCB. That is, in a severe environment, happy employees share happiness and work hard to give customers positive emotions and actions to make them feel happy.

Finally, this study also supports the extension/spillover of internal marketing activities into external marketing activities; that is, when organizations treat employees as customers and are committed to maintaining their occupational safety, employees feel happy and satisfied (internal marketing benefits). Employees spread this happiness and satisfaction to customers and provide more and better services (external marketing benefits). This study found that; safety leadership increases employee well-being and improves CCB. While past research has mostly confirmed the positive benefits of leadership to employees and organizations, the findings of this study confirm that leadership that promotes safety has a positive impact on employee attitudes and behaviors.

5.2 Practical implications

Owing to the rapid growth of food delivery work in the COVID-19 environment, the occupational safety issues of these delivery workers are particularly worrying and important. Therefore, this study proposes that, in occupational safety management, if food delivery companies can pay attention to human factors (e.g., the supervisor's safety leadership) and organizational factors (e.g., organizational overall safety training), they can form an overall organizational safety support system to make employees feel that

COVID-19 and Food Delivery Employees' Workplace Safety

their organization and managers care about them and value, support, and help their job safety and health. This will naturally reduce their insecurity at work and increase employee well-being (Sedani et al., 2019; McLellan et al., 2015), motivating them to improve service quality and additional service behaviors (Pronk et al., 2019; McLellan et al., 2015, 2014; Payne et al., 2018; Cooklin et al., 2017). On the other hand, for a competitive and rapidly changing emerging industry (e.g., the food delivery industry), coupled with the COVID-19 pandemic, the implementation of occupational safety management is also urgent and helps create important competitive differentiation and advantages (Meenakshi & Sinha, 2019).

First, for managers, whether employees' safety behaviors are effectively implemented is related to managers' safety leadership. Supervisors/leaders must have correct safety knowledge and values, enhance their practical safety leadership and demonstrate communication behaviors (Zhang et al., 2021). Managers' idealized influence, personal care, continuous encouragement, and so on, can enhance employees' safety performance, reduce their job insecurity and enhance their well-being. For example, in daily work, supervisors can act as partners and coordinators of delivery employees, sincerely care for and teach them how to use protective tools correctly, provide correct safety service procedures and occupational disaster knowledge, deliver new information on employee safety and pandemic prevention, jointly remind and establish better safety habits, and follow effective safety and hygiene methods to reduce accident risks and traffic accidents at work (Sedani et al., 2019). In addition, managers should prioritize of safety and health in the employee work process, working hours, work plans, and resource allocation. Organizations should also pay attention to the practice scores of safety and health in the regular performance evaluation of managers and employees. Supervisors' safety leadership behaviors are not only conducive to ensuring employees' actual work safety; but also provide employees with a sense of psychological security and well-being. These happy employees will be more willing to provide better service to customers.

Second, in terms of organization, the implementation of organizational safety training is a big umbrella for maintaining everyone's job safety (Nairn, Ostendorf & Bi, 2014; Wang, Wang, & Xia, 2018). Therefore, organizations should provide diversified safety training programs and strategies (Huang et al., 2017), including advanced safety education, regular safety training, safety publicity activities, and special event safety education (McLellan et al., 2015; Merchant et al., 2013). In other words, compared with monetary rewards, establishing an organizational overall safety system or safety training can form a sense of intimacy between the organization and employees, and make employees more willing to practice some co-creation behaviors, such as improving service quality, and CCB (Bell & Menguc, 2002; Dimitrades, 2007). However, the rapid contagion and long incubation period of COVID-19, threatens the safety of people worldwide, just like the Third World War, which may be difficult to resolve in the short term. Therefore, organizations should implement public health and safety education measures such as educating everyone in the organization to wash their hands frequently, wearing masks during working hours, increasing knowledge about the COVID-19 virus and its changes, providing psychological counseling and coaching, encouraging widespread screening and vaccination against COVID-19, and staying abreast of government and organizational anti-pandemic policies. Such safety education and actions not only help improve employees' workplace safety and well-being during COVID-19 but also allow them to share happiness and be willing to take the initiative to make more customers happy.

5.3 Limitations and future researches

Although this study provides some interesting discussions and insights, there are still limitations. First, only one organizational factor and one managerial factor are considered for workplace safety, so future research can consider other organizational factors (e.g., safety management system, safety culture/climate, safety strategy, and safety investment (Cheyne et al., 1998)) or other manager factors (e.g., safety communication, safety management, safety conflict (Clarke, 2006) or employee factors (e.g., unsafe behavior (Hofmann & Stetzer, 1996), safety awareness, personality traits) to investigate how these variables to influence employee attitudes and behaviors. On the other hand, Bazzoli et al. (2020) classified safety leadership into 3 types, including transformational safety leadership, transactional safety leadership, and passive safety leadership, and this study did not conduct such detailed

COVID-19 and Food Delivery Employees' Workplace Safety

classification and discussion. Further research can use these different safety leadership styles to explore related issues more carefully.

Second, further researchers can use the method of experimental design or focus group interview to understand the actual situation of delivery employees' safety and hygiene when working in the external environment (Huang & Lin, 2021). Another limitation is the problem of cultural differences. The food delivery situation and its impact on different countries/regions may be different, including the degree of emphasis on teamwork, uncertainty avoidance, power distance, or individualism/collectivism, future research can focus on different cultural values compared or explored in depth. However, the mediating variable in this study only considered employee well-being, and future research can explore other mediating factors, including job satisfaction, affective commitment, or organizational identification. On the moderating variables, some personal and background factors may also affect the relationship between safety leadership and employee well-being, such as managers' initiative, job characteristics, organizational structure, organizational culture, and organizational change.

Finally, this study used multiple employees to evaluate the safety leadership of the same supervisor, but did not consider the effect of different levels. It is suggested that future research can use multiple hierarchical analysis methods to examine some relevant findings more carefully. Moreover, the sample for this study was not randomly selected and subjects were not randomized, to minimize omission bias in statistical analysis, this study controlled for delivery employees' demographic variables and job commitment. However, this study still suggests that future research should adopt a random sampling method for relevant hypothesis testing.

Note:

1. There is no conflict of interest in this research, and it is stated that: (1) No funding or other support has been obtained by any organization or individual; (2) there are no other relationships or activities that affect this research.
2. The process and results of this study are consistent with the ethical standards of the National Research Council and related research units, and ensure that all participants do not suffer any mental, spiritual and physical harm, and do not damage their safety and rights.
3. Informed consent of all samples was obtained in this study. First, this study informs all participants of the purpose, importance, and procedures of the research; informs them of the cooperation matters, and emphasizes that their names and opinions will be kept completely confidential. Finally, if necessary, a summary of the results of this study will be freely available to any participant as a reference.

Appendix: The explanation and measurement of questionnaire modification

The original questionnaires of this study were all translated from Western countries' questionnaires or viewpoints into Chinese. To avoid the difficulty of understanding Taiwanese employees caused by cultural differences between the China and West, this study carried out a rigorous reliability and validity analysis. Reliability analysis was used to confirm the consistency of research results; in terms of validity, expert revisions by human resources professors/managers were carried out first, and then the testers were allowed to express their opinions and revisions through a pretest. Finally, EFA was performed on the formal samples to understand the validity of the revised scale. In addition, this study also performed CFA on the formal samples to test the suitability of the final scale for SEM. Therefore, the complete questionnaire is as follows:

1. Safety leadership

- 1-1 My supervisor leads everyone to carry out various safety protection and guidance to achieve employee work safety.
- 1-2 My supervisor often teaches me how to properly use the tools and materials on the job.
- 1-3 My supervisor asks me to confirm that it is safe and correct when I work.
- 1-4 My supervisor often demonstrates safe work methods and actions.

COVID-19 and Food Delivery Employees' Workplace Safety

1-5 My supervisor values safe work standards and procedures.

1-6 My supervisor attaches great importance to the physical condition of employees and safe driving.

1-7 My supervisor often teaches me safety methods for COVID-19.

1-8 My supervisor asks for epidemic prevention measures and regulations.

1-9 My supervisor often values physical condition and safety protection for COVID-19.

2. Safety training

2-1 My organization routinely arranges safety and hygiene training courses.

2-2 My organization often trains employees on how to comply with work safety practices.

2-3 My organization often educates employees on correct safety attitudes and behaviors.

2-4 My organization conducts safety education for special events.

2-5 My organization often educates employees on the correct attitudes and behaviors of epidemic prevention.

2-6 My organization often arranges various safety and epidemic prevention training courses for COVID-19.

2-7 My organization often trains employees to take various safety and epidemic prevention measures.

2-8 My organization conducts safety and epidemic prevention education for special events.

3. Employee well-being

3-1 I feel my work is beautiful.

3-2 At work, I am passionate about others.

3-3 I am optimistic about the prospects.

3-4 I am interested in most things at work.

3-5 I am always willing to commit to work and involvement.

3-6 I think this job brings me a good feeling.

3-7 For work, I often feel satisfied.

3-8 I am satisfied with most things at work.

3-9 I feel very happy at work.

3-10 At work, I can always bring others laughter.

3-11 I often feel the happiness and joy that work brings.

3-12 I think I have a lot of energy for work.

3-13 When getting along with others at work, I feel full of fun.

3-14 I have many good memories of my past work.

3-15 My work has important meaning and goals

4. Service quality

4-1 I think the dressing of the delivery employee is decent and neat.

4-2 I think the service of the delivery employee is attractive.

4-3 When the delivery employee promise to accomplish something within a certain period, he/she will do it.

4-4 When I have problems, the delivery employee will express sincere willingness to solve the problems.

4-5 Most of the delivery employee provides the correct service the first time.

4-6 Most of the delivery employee meets my special needs.

4-7 Most of the delivery employee adhere to the record of no mistakes in service.

4-8 When the company has special offers, the delivery employee will tell me exactly.

4-9 The delivery employee often provides timely service to me.

COVID-19 and Food Delivery Employees' Workplace Safety

- 4-10 The delivery employee is always a pleasure to help me solve service problems.
- 4-11 The delivery staff never fails to respond to my request, even if he/she is busy.
- 4-12 The behavior of the delivery employee always makes me feel trustworthy.
- 4-13 Most of the delivery employee are polite.
- 4-14 Most of the delivery employee have enough knowledge to answer my questions.
- 4-15 The delivery employee often pays attention to the response and needs of each customer.

5. CCB

- 5-1 The delivery employee usually provides me with high-quality services.
- 5-2 The delivery employee usually takes the initiative to provide me with some additional services.
- 5-3 When I put forward service suggestions, the delivery employee will improve the shortcomings.
- 5-4 The delivery employee is usually willing to put their minds to solving my problems.
- 5-5 The delivery employee usually adopts some methods to retain customers.
- 5-6 The delivery employee asks my opinion to provide better service.
- 5-7 The delivery employee takes the initiative to promote the company's good products or services.

6. Job commitment

- 6-1 I am willing to work hard to complete my work.
- 6-2 I take the initiative to assist others in solving work problems.
- 6-3 I am willing to share my work experience with others.
- 6-4 I feel honored after finishing the task.
- 6-5 I take the initiative to learn the skills needed at work.
- 6-6 I have a strong sense of responsibility for my work.
- 6-7 I am willing to pay for my work regardless of gains and losses.
- 6-8 Putting into work gives me a sense of accomplishment.
- 6-9 I often plan the future development of my work.
- 6-10 I cherish any learning opportunities at work.

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COVID-19 and Food Delivery Employees' Workplace Safety

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