

COVID-19 Public Health Strategy Implementation for the Hospitality Industry in Taiwan

Heidi H. Chang


*I-Shou University, Taiwan
heidichang@isu.edu.tw*

MiRan Kim

*Michigan State University, USA
kimmi@broad.msu.edu*

This study attempts to explore the public health strategies that hotels in Taiwan have applied during the COVID-19 pandemic crisis. This empirical study develops a list of public health strategy practices from a pilot study using in-depth interviews, followed by a questionnaire survey. The research samples are 4-star and 5-star hotels in Taiwan, which are the most popular hotel choices for domestic and international travellers. Out of 127 hotels, 76 hotel owners, general managers, or executive managers participated in the survey. The findings illustrate the frequency of public health strategies that hotels have used during the coronavirus crisis. It shows that the most popular strategy is strengthening hygiene and cleanliness in hotel operations to offer reassuring lodging services and accommodation products. The results also show there is no significance difference in implementation of the various public health practices regarding hotel location, nationality of main customers, hotel performance, annual F&B revenue, or annual room sales. This study suggests hotels implement public health strategies to limit the spread of disease, regain customers' trust and promote the hotel during and after the COVID-19 pandemic. The paper concludes with recommendations for crisis management and crisis preparation for the hospitality industry.

Keywords: COVID-19, public health strategy, crisis management, social exchange theory, hospitality industry

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Introduction

The global spread of the COVID-19 pandemic, large-scale travel restrictions, and social distancing norms have dramatically wreaked havoc on the hospitality and tourism industry. This global pandemic has caused the deepest recession of the global economy since World War II (The World Bank, 2020). The current COVID-19 pandemic crisis is perceived as an unexpected, random, shock, sudden stop to global society and the economy; a massive disruption of eco-

nomics activity causing long-lasting injuries to the labour force (Karabag, 2020; Orłowski, 2020). The rapidly evolving global pandemic caused international travel bans, affecting over 90% of the world population, and resulted in widespread restrictions on public gatherings and community mobility. Tourism has largely ceased since March 2020 (Gossling et al., 2020). The decline of tourism and travels, along with a slowdown in economic activity, has especially made hotels susceptible (Hoisington, 2020).

The COVID-19 pandemic crisis has caused the most serious and devastating effects, with the global loss of 6 million lives, including nearly 995 thousand deaths in the United States by May 22 (Johns Hopkins University, n.d.). Taiwan reported its first COVID-19 case returning from Wuhan, China, on January 21st, 2020. Statistics show that there were 173,942 confirmed COVID-19 cases and 876 deaths in Taiwan (Johns Hopkins University, n.d.). As early as December 31, 2019, Taiwan had issued travel alerts to China and imposed border controls, where direct flights arriving from Wuhan, China, were all screened onboard (Hsieh, 2020). Since March 2020, due to the continued spread of the COVID-19 pandemic, the Taiwanese Central Epidemic Command Centre (CECC) has implemented border control measures and flight bans, prohibiting foreign nationals from visiting Taiwan except for fulfilling commercial and contractual obligations. Consequently, compared with the same period in 2019, international arrivals declined by 98% during 2020; the occupancy rate in high-end hotels (i.e. 4-star and 5-star hotels) dropped approximately 70% (Taiwan Tourism Bureau, 2020a). With government policies, restrictions and bans regarding inbound travellers during the COVID-19 global health crisis, the Taiwanese hotel industry consequently has suffered significant loss from the severe drop in international travellers and domestic visits.

During the COVID-19 pandemic, many governments responded to the crisis by promoting measures aimed at containing infections, such as personal hygiene, social distancing, and wearing face masks and other protective gear. Hotel companies, as the private sector dealing with travellers, have served an important role. Some hotels have been used as quarantine hotels for international visitors and quarantined spaces for those exposed to COVID-19, such as healthcare workers (Rosemberg, 2020). Many hospitality scholars have put a great emphasis on the importance of public health strategies in the hospitality industry because these strategies serve the functions of protecting the employees and ensuring a safe environment for the customers (e.g. Hao et al., 2020; Jiang & Wen, 2020).

This study has two research objectives. Firstly, it

aims to explore the public health strategies that hotel companies have been adopting to restore customer confidence and to protect the hotel staff and customers. Secondly, this research investigates whether hotels with different locations, customers, and performance apply different public health strategies. Understanding how the COVID-19 crisis impacts Taiwan's hotel sector and management reactions to it would afford insights into the problems caused by the outbreak of infectious disease. The contribution of the study is to provide further implications and suggestions to the hospitality industry in dealing with COVID-19 and other health-related crises such as flu, H1N1, Ebola, etc. (see, for example, Cahyanto et al., 2016; Hung et al., 2018; Oaten et al., 2015).

Hospitality Industry in Taiwan

The hotel industry in Taiwan is reputedly one of the most competitive sectors and a major contributing factor toward Taiwan's economic growth (see, for example, Wu et al., 2008; Chen et al., 2007; Kim et al., 2006). The key for the tourism and hospitality industry in Taiwan is 4-star and 5-star hotels. These hotels offer multiple uses to visitors such as lodging, food services, social activities, conference facilities, health clubs, entertainment facilities, shopping centres, and other services (Taiwan Tourism Bureau, 2004; Wu et al., 2008). These two categories of hotels are popular accommodations for inbound and domestic travellers. They are often considered as 'high-end' hotels in the hospitality industry in Taiwan. The Taiwan Tourism Bureau operational performance report and analysis indicates that the service quality, the number of rooms, and the hotel business administration of these 4-star and 5-star hotels are the core of Taiwan's hospitality industry (Taiwan Tourism Bureau, 2004).

In 2003, Taiwan was one of the countries seriously affected by Severe Acute Respiratory Syndrome (SARS), experiencing the third largest global outbreak on record. Over the course of the SARS crisis, there were 674 cases and 84 deaths, fewer than mainland China (5,327 cases and 348 deaths) and Hong Kong (1,755 cases and 298 deaths). In late February 2003, Taiwan's first case of SARS occurred in a businessman having a history of travel to Guangdong Province,

China. The Taiwan governments, physicians, health specialists, health care facilities, media, and citizens took serious action after as a result of the experience of the SARS crisis. The SARS epidemic in Taiwan 'stimulated vast and very rapid improvements in the health infrastructure, especially in the areas of hospital infection control procedures, systems for data collection and reporting, mobilization of the public, and coordination of all agencies contributing to the outbreak response' (Chang, 2004). From the reviews and experiences of the SARS crisis, Taiwan has prepared a better structure for a command centre and developed some standard operating procedures (SOPs) to manage possible future epidemics (Huang, 2020). Hotel companies have adopted different crisis management strategies during different stages of the health crisis (e.g. Kim et al., 2005; Henderson & Ng, 2004).

There have been no global SARS outbreaks since 2003. However, in late 2019, COVID-19, which is caused by the 2019 coronavirus, became pandemic and influenced the tourism and hospitality industry. Impacted by COVID-19, many hotels, room sales, restaurants, and banqueting services in Taiwan have suffered particularly seriously since March 2020 (Wu & Tsai, 2020). The first case was confirmed on January 21st 2020, just before the Lunar New Year during which time millions of Chinese and Taiwanese were expected to travel for the holidays. As the Taiwanese authority closed the border, forbidding any international travellers, hotels in metropolitan area had an occupancy rate below 60%. With strict border controls and contact tracing, Taiwan was able to maintain a low number of cases and deaths, so the country did not apply lockdown, social distancing, or domestic travel restrictions until mid-May 2021 (Taiwan's Ministry of Foreign Affairs, n.d.). After an outbreak in an international brand-hotel in May, Taiwan faced a sudden COVID surge. The outbreak originated from the Novotel Taipei Taoyuan International Airport hotel, which accommodated crew from China Airlines during their quarantine. A total of 30 confirmed COVID cases and 1 death involved China Airlines pilots and hotel staff. The hotel was fined US\$45,660 for violating basic quarantine rules when it hosted domestic travellers and quarantined pilots in the same building

(Strong, 2021). The Health Department fined Novotel hotel because it did not provide appropriate rooms to guests who were required to be in quarantine under Taiwan's COVID-19 prevention measures. The airport hotel was at the centre of a cluster of COVID-19 infections due to mixing the general domestic hotel guests and flight crews in quarantine on the same floor. The five-star hotel's failure to carry out quarantine and health management measures related to the hotel guests caused the sudden COVID surge in Taiwan.

Public Health Strategy

It is considered that the SARS transmission was successfully contained by implementing strict public health measures, such as early case detection and isolation, contact tracing and isolation and social distancing (Schulman & Rowley, 2021). The Taiwanese government learned from its 2003 SARS experience and established a public health response mechanism for enabling rapid actions in preparing for the next epidemic crisis (see, for example, Wang et al., 2020; Yen et al., 2014). Strategy has been referred to as the overall approach to a problem (Quarantelli, 1988), so in this study, public health strategies are defined as the overall approach dealing with the COVID-19 pandemic. Public health strategy provides the approaches for 'translating new knowledge and skills into evidence-based, cost-effective interventions that can research [sic] everyone in the population,' and it aims to 'protect and improve the health and quality of life of a community' (Stjernswärd et al., 2007). These approaches can be incorporated by government into all levels of the health care system, public sector, and private companies. Hotels have accommodated inbound travellers, domestic travellers, and residents returning to the country during COVID-19. Hotels need to be more prepared for safety training, hygiene and cleanliness to ensure customers a safe and pleasant stay. In response to infectious diseases like COVID-19, organizations such as hotels need to have a higher standard to assure public health and meet the requirements for epidemic prevention (Chang, 2020; Gossling et al., 2020; Jiang & Wen, 2020; Kim et al., 2005; Yang & Wei, 2020).

The sudden outbreak in May happened in the air-

port hotel which violated the quarantine rules by housing quarantined flight crews and local guests in the same building (Nordling & Wu, 2021). It has reminded the Taiwanese hotel industry and the public health policymakers of the importance of border control with quarantine upon arrival in the hotels. From June 2020 until the current outbreak since May, life in Taiwan was pre-pandemic, except for the mandatory mask and temperature checks on public transportation and at large events (Nordling & Wu, 2021). During the pandemic crisis, hotels in Taiwan have applied different public health strategies while only face mask wearing is mandatory.

Social Exchange Theory

Social exchange theory (SET), rooted in economic theory and modified for the study of the social psychology of groups, focuses on the perceptions of the relative costs and benefits of relationships, and determines risks and benefits of two parties and their implications for relationship satisfaction (Thibaut & Kelley, 1959; Blau, 1964). Homans (1961) defined social exchanges as the exchange of tangible or intangible activities, and reward or cost between at least two parties. A growing literature theorizes employee safety activities as a product of organizational practices related to safety (Turner & Grey, 2009; Probst et al., 2013), and organizational support for a safe workforce for employees and customers is considered as a social exchange relationship (Reader et al., 2017). Utilizing SET, Reader et al. (2017) indicated the association between employees' health and the administration of personal protective equipment, development of safety protocols, and design of safe equipment. With high uncertainty regarding COVID-19, it is unknown which stage of the crisis this pandemic is in. As the number of confirmed cases and deaths are still increasing globally, hotel companies need to apply different strategies not just for business activities of mere selling and buying products and services during the crisis, but also for repeated patronage, loyalty, trust, and commitment exchange for the post-crisis long run.

SET hypothesizes that 'the more valuable to a person is the result of his action, the more likely he is to perform the action' (Homans, 1974). Public health

strategies like hygiene and cleanliness have proven essential to successful hotel operations, especially during and after public health crises such as SARS and COVID-19 (Chien & Law, 2003; Kim et al., 2005; Jiang & Wen, 2020). It is essential for hotel companies to implement public health strategies and spontaneously coordinate with the Government Health Department and CECC to restore customers' confidence. Public health strategies do not create economic exchange between hoteliers and customers, but they can lead to the development of trusting and committed long-term relationships during the post-crisis stage. Chang's (2020) study indicated that hotels need to apply 'epidemic prevention' practices including additional personnel hygiene and safety training (for example, mask-wearing, hand washing, body-temperature measurement), environmental sanitation, equipment disinfection, standard operation procedures for check-in guests, housekeeping, room service, garbage disposal, air conditioning, cleaning, etc. Governments and hotel companies need to develop and follow special regulations for epidemic prevention purposes, which are different from the usual hotel management standards and operation procedures (Chang, 2020). As a public service, the Taiwanese CECC made plans to assist schools, businesses, hotels, and furloughed workers to be prepared for the COVID-19 crisis; these reassurances and education for the public include when and where to wear masks, the importance of handwashing, personal hygiene, social distancing, etc. (Wang et al., 2020). This study hypothesizes that hotels with different locations, performance and revenues would apply different public health strategies. The hypotheses are as follows:

- H1 *There is a difference in public health strategies implementation with hotels in different locations.*
- H2 *Hotels with a majority of customers who are international or domestic show differences in the implementation of public health strategies.*
- H3 *There is a difference in public health strategies implementation in hotels with different performance.*
- H3a *There is a difference in public health strategies*

implementation in hotels with different occupancy rate, F&B sales, takeout sales, and catering sales.

H3b *There is a difference in public health strategies implementation in hotels with different annual room sales.*

H3c *There is a difference in public health strategies implementation in hotels with different annual F&B revenue.*

Methodology

The 4-star and 5-star hotels in Taiwan are the most popular hotel choices for both domestic and international tourists. There are one hundred and twenty-seven 4-star and 5-star hotels accredited by the star rating evaluation programme of the Taiwan Tourism Bureau (2020b). These hotels accommodate tourists with amenities and services such as luxury suites, fitness centres, spas, multiple restaurants (for residents and non-residents), 24-hour services, car services, etc. Compared to hotels below 3-star, the 4-star and 5-star hotels in Taiwan are large-scale hotel businesses, having more hotel rooms and restaurants to accommodate customers coming for lodging, events, and dining. There are more interactions between customers and employees, as well as more hotel rooms and public areas being used. As the Tourism Bureau considers the 4-star and 5-star hotels the key for the tourism and hospitality industry in Taiwan (Taiwan Tourism Bureau, 2004), these 127 accredited hotels are the research samples in this study.

To develop the survey instrument, this study firstly initiated in-depth interviews with two executive managers and one food and beverage director from 5-star hotels and one general manager from a 4-star hotel. From mid-January to the end of February, the researcher stayed in three 5-star hotels in the North, Middle and South part of Taiwan, using the participant observation method to explore how hotels accommodate customers during COVID-19. One hotel is an international chain-hotel, one is a local chain-hotel, and one is an individual-owned local hotel in Taiwan. With a literature review (e.g. Chang, 2004; 2020; Gosling et al., 2020; Hao et al., 2020; Isaeli & Reichel, 2003;

Tang, 2020), in-depth interviews and participant observation, this study developed items measuring the frequency of usage of public health strategies in the 4-star and 5-star hotels during the coronavirus pandemic. Out of 127 hotels, 76 hotel owners, general managers, or executive managers participated in the survey. The questionnaire uses a 5-point Likert Scale to examine the usage of public health strategies, from 1 (never) to 5 (always). The complete list of 23 practices is provided in Table 1. The second section includes questions about hotel information, such as location, changes of hotel performance in occupancy rate and F&B revenues, and annual total revenue.

Data Collection

The questionnaires were pre-tested by two experienced executives in the hotels and two professors in the hospitality department. The paper-and-pencil questionnaires, along with the online survey, were distributed to all 127 4-star and 5-star hotels in Taiwan. To increase the response rate, multiple types of direct and indirect contacts were adopted. Personal visits, phone calls, and contacts through the Bureau of Tourism were applied. From March to April 2020, the general manager or executive managers of 127 hotels in Taiwan were asked to provide information on public health strategies hotels have been using during COVID-19. Each participating hotel had one representative complete the survey. Seventy-six valid data sets were used for the analysis, yielding a 60% response rate.

Item Analysis and Reliability

The internal consistency of the public health strategy scale was high; the Cronbach's α is 0.841. The item-total correlations ranged from 0.31 to 0.63 and were all statistically significant ($p < 0.05$). The Cronbach's α coefficient did not increase if any item was deleted from the scale. It was decided to keep all the items in the public health strategy scale.

Results

No significant differences were found in the responses from the electronic and hard copy survey, based on

Table 1 List of Public Health Strategies, and Item-Total Correlation

Strategy/Description	Item-total correlation
1 Proactively provide employees with COVID-19 information for training purposes.	0.31**
2 For the pandemic, provide personal hygiene and safety-related training, such as appropriate ways of mask-wearing, hand washing, body-temperature measurement, etc.	0.51***
3 Provide staff with training in regards to 'customer service flow' during the pandemic.	0.52***
4 Provide staff with training in regards to environmental sanitation, such as equipment disinfection.	0.42***
5 Provide materials and supplies for employees for COVID-19 prevention mechanisms, such as face masks, forehead thermometers, hand sanitizer, disinfection wipes, alcohol spray, bleach, etc.	0.47***
6 Train and educate employees with standard operating procedures (SOPs) to handle suspected COVID-19 customers.	0.57***
7 During COVID-19 crisis, an 'epidemic command centre' in the hotel is established to integrate resources of the administration, different business units, medical, and public sectors.	0.63***
8 Prepare and assign special floors or specific rooms in advance for quarantine of suspected COVID-19 customers or employees.	0.41***
9 Prepare and reserve special floors or specific rooms for government departments (e.g. Centre for Disease Control and Prevention) as quarantine stations.	0.57***
10 F&B Department develops special menus for healthy and nutritious food, such as immunity herbal tea, immune-boosting meals, etc.	0.57***
11 Apply food safety strategies by providing takeout, delivery, kerbside pickup service, or special lunchbox deal.	0.61***
12 Establish a special kitchen section for handling packaged food and food preparation during COVID-19.	0.53***

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chi-square and *t*-test so the two methods of data collection were combined for analysis. With 76 valid sets of data, the results indicate that most hotels encountered more severe profit loss, and are more heavily affected by COVID-19, compared to SARS. This demographic statistic is consistent with the percentage of hotel categories in Taiwan, indicating the participating hotels in this study are representative samples. Seventy-five percent of the participating hotels had their occupancy rate drop more than 51%; 58 percent had F&B sales drop more than 51%. Fifty percent of banquet services were cancelled, 35% postponed, and 3% transferred to other events, while 10% remained as scheduled during the pandemic. The majority (63%) of the participating hotels are located in the city's business district (CBD), 21% are located in tourist attractions, 8% are located in urban areas, and 8% are located around an airport. As for the hotel annual revenue, the majority (47%) has F&B revenue amounting to USD 3

to 10 million, 20% have 11–17 million; 40% have room sales amounting to USD 3 to 10 million, and 24% has 11–17 million.

Implementation of Public Health Strategies

Table 2 presents the top 10 strategies that almost all the star-hotels always use, which are (1) strengthen hygiene and cleanliness in hotel operations to offer reassuring lodging services and accommodation products; (2) provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the front-desk and front-of-house (service) employees to ensure employee health, cleaning, and sanitizing; (3) provide the proper PPE (such as mask, gloves, face shield) for the back-of-house (kitchen) employees to ensure employee health, cleaning, and sanitizing; (4) measure the employee's temperature and assess symptoms prior to their starting work on a daily basis; (5) provide materials and supplies for employees for COVID-19

Table 1 Continued from the previous page

Strategy/Description	Item-total correlation
13 Provide special process of room service for hotel guests, such as knock-and-drop deliver, in-room dining and food options.	0.57***
14 Strengthen hygiene and cleanliness in hotel operations to offer reassuring lodging services and accommodation products.	0.57***
15 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the housekeeping employees to ensure employee health, cleaning, and sanitizing.	0.51***
16 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the front-desk and front-of-house (service) employees to ensure employee health, cleaning, and sanitizing.	0.60***
17 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the back-of-house (kitchen) employees to ensure employee health, cleaning, and sanitizing.	0.60***
18 The Housekeeping Department builds action plans for guestroom cleaning procedures in response to the COVID-19 outbreak, such as altering the frequency of changing the bedding, room cleaning and disinfection, trash removal, etc.	0.54***
19 The Housekeeping Department change dishwashing and laundry SOP in response to COVID-19.	0.55***
20 Measure the employee's temperature and assess symptoms prior to their starting work on a daily basis.	0.32**
21 Measure the customers' temperature before they start the check-in process at the front-desk.	0.45***
22 Measure the customers' temperature before they enter the restaurants for dine-in services.	0.53***
23 Designate a specific department, office or staff to gather public health information on COVID-19 strategies, policies and statistics updates from the private and public sector.	0.53***

Notes ** $p < 0.01$, *** $p < 0.001$.

prevention mechanisms, such as facemasks, forehead thermometers, hand sanitizer, disinfection wipes, alcohol spray, bleach, etc.; (6) measure the customers' temperature before they start the check-in process at the front-desk; (7) provide staff with training in regard to environmental sanitation, such as equipment disinfection; (8) provide the proper PPE (such as mask, gloves, face shield) for the housekeeping employees to ensure employee health, cleaning, and sanitizing; (9) for the pandemic, provide personal hygiene and safety-related training, such as appropriate ways of mask-wearing, hand washing, body-temperature measurement, etc.; and (10) proactively provide employees with COVID-19 information for training purposes. In contrast, the public health practices that 4-star and 5-star hotels rarely use are (1) establishing a special kitchen section for handling packaged food and food preparation during COVID-19 (mean = 2.31), and (2) preparing and reserving special floors or specific rooms for government departments (e.g. Centres

for Disease Control and Prevention) as quarantine stations (mean = 2.50).

T-Test and ANOVA

T-test was used to compare the mean for public health strategy implementation regarding different hotel location and nationality of main customers. This study categorizes the hotel locations into two: city business district (CBD) and non-CBD. It is found that there is no significant difference in implementation of public health strategies ($t = -0.33$; $p = 0.74$). H1 is not supported. The nationality of main customers is categorized to Taiwanese (domestic travellers) and non-Taiwanese (international travellers). The results show that there is no significant difference in implementation of public health strategies ($t = -0.20$; $p = 0.85$). H2 is not supported.

One-Way ANOVA was used to compare the mean for public health strategy implementation regarding (1) hotel performance in occupancy rate, F&B sales,

Table 2 List of Public Health Strategies, and Item-Total Correlation

Strategy/Description	(1)	(2)
14 Strengthen hygiene and cleanliness in hotel operations to offer reassuring lodging services and accommodation products.	4.92	0.39
16 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the front-desk and front-of-house (service) employees to ensure employee health, cleaning, and sanitizing.	4.91	0.37
17 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the back-of-house (kitchen) employees to ensure employee health, cleaning, and sanitizing.	4.91	0.37
20 Measure the employee's temperature and assess symptoms prior to their starting work on a daily basis.	4.89	0.53
5 Provide materials and supplies for employees for COVID-19 prevention mechanisms, such as facemasks, forehead thermometers, hand sanitizer, disinfection wipes, alcohol spray, bleach, etc.	4.87	0.41
21 Measure the customers' temperature before they start the check-in process at the front-desk.	4.86	0.56
4 Provide employees with training in regards to environmental sanitation, such as equipment disinfection.	4.83	0.58
15 Provide the proper personal protective equipment (PPE) (such as mask, gloves, face shield) for the housekeeping employees to ensure employee health, cleaning, and sanitizing.	4.82	0.65
2 For the pandemic, provide personal hygiene and safety-related training, such as appropriate ways of mask-wearing, hand washing, body-temperature measurement, etc.	4.78	0.57
1 Proactively provide employees with COVID-19 information for training purposes.	4.72	0.62
3 Provide employees with training in regards to 'customer service flow' during the pandemic.	4.67	0.76
6 Train and educate employee with standard operating procedures (SOPs) to handle suspected COVID-19 customers.	4.61	0.73

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takeout sales, and catering sales; (2) annual room sales; and (3) annual F&B revenue. It is found that there is no significant difference in implementation of public health strategies among hotel performance, annual room sales, and annual F&B revenue. H₃, H_{3a}, H_{3b}, and H_{3c} are not supported.

Implications and Conclusions

The findings of this study are consistent with previous research on the epidemic that during the SARS outbreak, the Korean hotel industry offered employees education programmes concerning safety, security and health awareness, as well as training and operating new hygiene equipment (Kim et al., 2005). In Taiwan, the high-end hotels (i.e. 4-star and 5-star hotels) have often used public health strategies during the coronavirus pandemic, while intensifying employees' safety training is the most-adopted practice. In the education programme, hotels provide staff with COVID-19 information and hygiene equipment, and give training in

personal hygiene and safety, special customer service flow, and environmental sanitation. Providing PPE for front-of-house staff, kitchen staff, and housekeeping employees are almost always applied in the daily hotel operation.

The high implementation of public health strategies in the hotels in Taiwan can be attributed to the transparent, easily-accessed, and open information provided by WHO, the Taiwanese Central Epidemic Command Centre, the Tourism Bureau and city governors. Local governments in Taiwan like Taipei and Pingtung (Chang, 2020; World Health Organization, 2020; TPEDOIT, 2020) have provided operational considerations and SOPs for COVID-19 management in the lodging business. With the SARS experience, in early March, 2020, the Department of Information and Tourism of Taipei City Government where the Taiwan capital is, developed and launched the *Manual of Pandemic Prevention SOP for Hotel Businesses* and made it available to all the hotel companies in Tai-

Table 2 Continued from the previous page

Strategy/Description	(1)	(2)
22 Measure the customers' temperature before they enter the restaurants for dine-in services.	4.61	0.94
18 The Housekeeping Department builds action plans for guestroom cleaning procedures in response to the COVID-19 outbreak, such as altering the frequency of changing the bedding, room cleaning and disinfection, trash removal, etc.	4.32	1.11
7 During the COVID-19 crisis, an 'epidemic command centre' in the hotel is established to integrate resources of the administration, different business units, medical, and public sectors.	4.11	1.2
23 Designate a specific department, office or employees to gather public health information on COVID-19 practices, policies and statistics updates from the private and public sector.	4.04	1.3
11 Apply food safety strategies by providing takeout, delivery, kerbside pickup service, or special lunchbox deal.	4.03	1.22
19 The Housekeeping Department change dishwashing and laundry SOP in response to COVID-19.	3.66	1.36
13 Provide special process of room service for hotel guests, such as knock-and-drop deliver, in-room dining and food options.	3.58	1.48
8 Prepare and assign special floors or specific rooms in advance for quarantine of suspected COVID-19 customers or employees.	3.24	1.66
10 F&B Department develops special menus for healthy and nutritious food, such as immunity herbal tea, immune-boosting meals, etc.	3.04	1.59
9 Prepare and reserve special floors or specific rooms for government departments (e.g. Centres for Disease Control and Prevention) as quarantine stations.	2.5	1.68
12 Establish a special kitchen section for handling packaged food and food preparation during COVID-19.	2.31	1.37

Notes Column headings are as follows: (1) mean, (2) standard deviation.

wan. The manual contains general information about the coronavirus pandemic, outbreak prevention practices, hotel management during a pandemic, SOPs for customer check-in, hotel room cleaning, food safety, transportation arrangement, cleaning and disinfection (TPEDOIT, 2020).

This study also found the least-adopted public health strategy in the hotels is to establish a special kitchen section for handling packaged food and food preparation during COVID-19. Since April 12 until the time of writing this article, the Taiwanese government has successfully managed to maintain a record of no local COVID-19 transmission. Namely, local people's life has remained normal, the country has never instituted lockdown orders, and the vast majority of restaurant and hotel businesses have remained open (Aspinwall, 2020). One of the business characteristics of 4-star and 5-star hotels in Taiwan is that half of the hotel revenue comes from F&B sales, which is

mostly generated by domestic purchase, and the hotels have maintained their regular kitchen operations without particular food-safety practices during the coronavirus pandemic. Another rarely adopted practice is preparing and reserving special floors or specific rooms in the hotel for government departments (e.g. Centres for Disease Control and Prevention) as quarantine stations. It can be explained by the successful control for COVID-19 so the demand is not there.

This study not only explored the frequent implementation in employee safety training and employees'/customers' safety and protection, it also found there is no significant difference in implementation of public health strategies in regard to different hotel locations, annual revenue or nationality of customers (international or domestic visitors). Namely, almost all the 4-star and 5-star hotels frequently apply the strategies to protect the health and safety of its

staff and customers during the COVID-19 pandemic. The public information concerning COVID-19 management in the accommodation sectors provided by national and local governments in Taiwan has been a common platform of knowledge by contributing best public health practice experiences for better crisis preparedness and response. Knowledge-sharing concepts can explain the effectiveness of public health strategy implementation as part of crisis management in the hospitality industry in Taiwan (Racherla & Hu, 2009). In SET, Blau (194) indicated that the party anticipates what the reward would be in regards to their next social interaction. It explains that high-end hotels in Taiwan are highly engaged with public health strategies, without Government mandatory requirements, because they expect the customer will reward their strategy of implementation for preventing and limiting the spread of the coronavirus pandemic. Even those hotel companies that had more than 50% in occupancy rate and F&B sales have all implemented the public health strategies during the COVID-19 crisis to protect their customers and employees, and to regain trust from future customers. It is consistent with Jeong and Oh's study in the hospitality and tourism field (2017) that strategizing a business relationship requires not only economic exchanges but also additional social sharing of psychological rewards in the long run. Hotels strictly apply the public health measures regardless of location and annual performance because 'social costs and rewards drive human decision and behavior' (Blau, 1964). Social rewards like emotional satisfaction and sharing ideas is important, and even economic rewards are relevant (Lambe et al., 2001).

Four-star and 5-star hotels often have their employees trained in SOP dealing with suspected COVID-19, and having an epidemic command centre to integrate hotel, hospital and government has proved the importance of hotels having public health care facilities and services, which play imperative roles in pandemic prevention and control (e.g. Jiang & Wen, 2020; Chen et al., 2007). As Taiwan has never undergone lockdown during the pandemic, the often-used hygiene and cleanliness practices in a hotel property are essential to restore customers' confidence in dining and

lodging. As Jiang and Wen (2020) mentioned in their study, after a public health crisis like COVID-19, effective strategies are necessary to boost customers' confidence and to help hotel businesses recover in a timely manner.

This study suggests that hotel managers adopt different public health strategies for managing a pandemic crisis. The strategies could include:

1. Intensifying employee safety training (Strategy 1–5, see Table 1)
2. Providing hotel-based health-care services and facilities (Strategy 6–9)
3. Assuring food safety and providing healthy food choices (Strategy 10–13)
4. Enhancing hygiene and cleanliness (Strategy 14–18)
5. Providing safety and protection to employees and customers (Strategy 19–23)

During the abrupt health-based crisis of COVID-19, employers in the hotel industry have been obliged to safeguard their workers' health and safety, emphasizing the administrative control of changing the way people work, and the protection of workers with PPE (Rosemberg, 2020). The findings in this study are consistent with the recommended measures in hierarchy of controls from the National Institute for Occupational Safety and Health (NIOSH) and the CDC in the USA to protect hotel employees, in particular the front-line staff (Centers for Disease Control and Prevention, 2020; Rosemberg, 2020). Among all the public health strategies hotels adopted during the pandemic, only a few were enforced by CECC in Taiwan. All the hotel customers and employees have been required to wear masks in public areas. Face masks have been considered as the key factor making Taiwan limit the spread of coronavirus (Hsu et al., 2021). Consequently, people who do not wear a face mask in public must face a fine of up to US\$536. The rest of the public health strategies implemented by the hotel companies in Taiwan were voluntary.

Nevertheless, the results show that hotels frequently strictly adopt public health measures. The findings can be explained by SET that hotel companies consider the rewards of applying public health strategies

to prevent the spread of COVID-19 and carrying social responsibility are higher than the costs (Eggert et al., 2006; Walter et al., 2001).

Research Limitations and Future Studies

As hotels are prominently suffering from the pandemic, it is necessary to examine how hotels should establish contingency plans for infectious disease control. This study is an exploratory study investigating the public health strategy implementation in hotels and findings indicate the most and least frequently used strategy overall. However, there are only 127 high-end hotels in Taiwan. Even with the high response rate of 60% with executive managers participating in the survey, the sample size of this study is 76 hotels, which is considered as a small sample which leads to a few limitations in statistical analysis. EFA cannot be applied to test the validity of the questionnaire items. Secondly, the participants were not asked about hotel brand; thus, the results could not be analysed by brand or service level.

A future study is suggested to further investigate the relationship among crisis management strategy, crisis preparation and performance. It is needful to carefully examine the impacts of crisis strategy to find the best industry practices in handling a public health crisis such as COVID-19.

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