Restaurant Preventive Behaviors and the Role of Media during a Pandemic

Abstract

This study explores how the preventive behaviors of restaurant customers towards COVID-19 are shaped by exposure and attention to media coverage, thereby connecting the issues of community anxieties and business resilience during crises. Ways in which media exposure and attention predict COVID-19 preventive behaviors were examined, as these relate to emotional fear responses and cognitive risk perceptions. An online survey was administered in Taiwan during the COVID-19 pandemic to test the proposed research framework. A total of 366 responses were collected using convenience sampling, and structural equation modeling was deployed to examine the hypothesized relationships. Results indicate that consumer fears and risk perceptions were positively influenced by media coverage of COVID-19. Moreover, fear positively affected individual risk perceptions, and risk perception positively influenced restaurant preventive behaviors. Risk perception was also identified as a mediator between a) media exposure and restaurant preventive behaviors and b) media attention and restaurant preventive behaviors.

KEYWORDS: COVID-19, media exposure, media attention, fear, risk perception, consumer behavior, restaurant.

"Hiring for customers: come in for a meal, or we will both starve to death" –

a restaurant poster display (CNA English News, 2020).

Introduction

The coronavirus disease 2019 (COVID-19) outbreak has been causing widespread distress

and economic hardship for consumers, businesses, and communities across the globe. The

restaurant and foodservice sector has been amongst the worst affected, with severe losses to

sales and jobs. Consumers have shown extreme reluctance to dine out due to lockdowns, social

distancing measures, and general caution towards places in which people congregate.

Restaurant footfalls have dropped precipitously relative to 2019 (CBS News, 2020). The

National Restaurant Association (2020) has forecast that the U.S. restaurant industry will have

lost US$240 billion by the end of 2020. As of March 2020, visitor traffic to restaurants and

cafes had declined by 75% in North America and Latin America and by 90% in the Middle

East (Inc, 2020). A similar situation has been observed in Taiwan, where the Ministry of

Economic Affairs reported that April 2020 was the worst month on record for food and

beverage sales. The decline for the sector was 22.8%, equivalent to US$1.6 billion and the

steepest ever year-on-year decline (CNA English News, 2020).

A substantial majority of consumers in the U.S.A. desire to dine out more frequently at

restaurants (National Restaurant Association, 2020). Of adult respondents, 83% said that they

were dining at restaurants less often than they preferred. Strong, pent-up consumer demand has

been forecast as dining room doors start re-opening. Though restaurants have been slowly

resuming operations some months into the pandemic, immediate implementation of all applicable COVID-19 prevention measures remains challenging. Dining establishments most likely to enjoy future viability will be those that are able to restore public confidence. However, customers have shown reluctance to change their habits, and this may challenge the effectiveness of restaurant efforts to communicate their COVID-19 preventive measures.

Mass media play a prominent role in the production, conveyance, and dissemination of important health information and knowledge (Brinn et al., 2012). The theory of consumer information process posits that exposure and attention to media coverage can increase consumer knowledge, affect attitudes, and encourage behavioral engagement, particularly in the case of health (Lee et al., 2015; Ritland and Rodriguez, 2014). The media indeed influence judgments about social risks (Slater and Rasinski, 2005). People typically lack first-hand experience when an epidemic breaks out and rely on media to stay informed and provide information about any associated risks (Holmes, 2008). Understanding public perceptions of the risks of COVID-19 offers a potential means of enhancing risk communications (Lohiniva et al., 2020). As COVID-19 continues to wreak havoc in the restaurant and foodservice sector globally, it is important to understand the role of media communications in promoting adaptive responses, shifting perceptions of risk, and adhering to restaurant preventive measures.

Few theory-based studies have investigated consumer reactions to media messaging about pandemics. Explorations have been particularly limited about how exposure and attention to

COVID-19-related media affect the affective responses, risk perceptions, and preventive behaviors of restaurant consumers. Scholars of media effects have been urged to measure both attention and exposure (Vraga et al., 2019). Media exposure measures whether individuals have come into contact with some form of media (e.g., media channels), whereas media attention provides a more deliberate measurement of content (e.g., disease mitigation). While it is reasonable to assume that increased use of media leads to increased exposure to diverse content, accelerating digital disruption across the media environment has prompted questions about whether exposure theories continue to offer the best explanation and measurement of media attention. A recent study concluded that media can alert the public to the potential spread of COVID-19 as well as to prevention and control measures (Zhao et al., 2020). Preventive actions merit serious consideration, particularly as individual jurisdictions have proven incapable of handling the COVID-19 burden single-handedly (Ataguba and Ataguba, 2020). We believe that now is the time to examine the impact of both exposure and attention on preventive behaviors.

To achieve this aim, the current study explored how preventive behaviors of restaurant consumers were influenced by exposure and attention to communications about COVID-19 through multiple media channels. We also examined how media exposure and attention relate to risk perceptions and emotional responses, which serve as predictors of restaurant COVID-19 preventive behaviors. Although there were two practical issues and challenges, we have offered potential new insights that could shape future scholarly conversations. Firstly, there has

been neglect of role of media in risk communications during the early period of the COVID-19 outbreak (first three months). For example, it is notable that early warnings about the pandemic were largely absent from the media (Fu and Zhu, 2020). Secondly, effective crisis and risk communications influence the formulation and implementation of national strategies, policies, and actions (Ataguba and Ataguba, 2020). The current study could contribute to knowledge about the deployment of media in crisis management in hospitality. It offers the prospect of extending the literature on media by evaluating the importance of both exposure and attention on risk communications. Though scholars such as Regan et al. (2016) have examined social media use by stakeholders for risk communications during a food safety crisis, public receptiveness to such crisis communications in the case of an infectious disease has not been explored. The current study extended the previous research stream on health issues that had recognized roles for both fear and risk, by exploring the complex process of media-provoked emotions and cognition to enhance communication strategies promoting restaurant preventive behaviors. This research contributes to scholarship and theory-building by proposing implications for media effects in the context of COVID-19 as well as offering practical guidance to the restaurant and foodservice sector when developing appropriate media and communication strategies for the current pandemic and potential future outbreaks.

Literature Review

Media Exposure and Media Attention to COVID-19

In the face of growing public awareness about the public health impacts of COVID-19, mass media can provide a feedback loop and reinforce prevailing views. Conducting a combined investigation of media exposure, attention, and use in order to address a major humanitarian crisis must be done in a timely manner (Huang, 2016). Two components of media exposure should be considered. The first is the spectrum of media coverage, ranging from established channels (i.e., radio, television, and newspapers) to new media (i.e., Facebook, Instagram, Twitter, and websites). The second is the quantity of media that is heard or viewed on particular issues such as environmental protection (Lee and Cho, 2019), emergency preparedness behaviors (Hong et al., 2019), and outbreaks of disease (Oh et al., 2020). The public relies on both traditional and new media to become informed about environmental conditions and potential threats. Media also provide alerts in the event of a dangerous situation that is approaching and needs attention (Perse, 2001). According to Rodgers et al. (2007), active users of a combination of traditional and new media consider health-related issues more carefully, whereas those engaged in only new social media are less attentive. Koo et al. (2016) found that intentions were influenced by exposure to both mass (traditional) media and social (new) media. Media also influence emotions. Olagoke et al. (2020) recently identified a positive relationship between exposure to COVID-19 news in mainstream media (i.e., cable news channels, CNN, FOX News, local news channels, The New York Times, and The Washington Post) and depressive symptoms. The authors of that study also noted that perceived

risks during the pandemic were triggered by mainstream media news content. The media play a pivotal role by magnifying the importance of what the public sees and/or hears in the news (Li et al., 2017). Media also carry a constructive duty by establishing a public culture of responsibility and safety, elevating concern for problems, and focusing on protective and/or preventive behaviors. The latter may be either general or sector-specific (e.g., restaurants or the travel industry) (Chuo, 2014; Huang et al., 2020).

It is worth pairing the attention that media pay to messaging and/or information with the effects of media exposure - channeling cognitive resources towards "particular types of message." Mass media can produce effortful cognitive processing of messages or information (Slater et al., 2009). Indeed, watching and reading about the pandemic has prompted a growth in public interest (Huynh, 2020). Previous research has shown that media attention to messages and/or information significantly influences persuasive behaviors (Lee and Cho, 2019; Ritland and Rodriguez, 2014; Slater and Rasinski, 2005). Ho and Yang (2018) stated that media attention to messages or information helps receivers to participate in the communication process. When receivers are exposed to messages or information, a transfer occurs into their store of knowledge. There is a strong association between knowledge about current issues, media attention, and cognitive processes as well as among media attention, selective scanning, and elaboration (e.g., a willingness to watch the news online or to read a magazine article, then receivers provide more detailed or new information) (Ho and Yang, 2018).

According to Vraga et al. (2019), measuring media exposure is insufficient, and attention to media content should be both considered and measured. Previous studies adopted an either/or approach - using *either* media exposure (Hong et al., 2019; Li et al., 2017; Oh et al., 2020) *or* media attention (Arendt and Scherr, 2019; Yanovitzky and Bennett, 1999). The current, more progressive approach deploys multiple indicators. From respondents, we collected restaurant preventive behaviors related specifically to media use, exposure, and attention to COVID-19. Media exposure and attention were treated as environmental stimuli. This study offers the prospect of impacting policy and practice by evaluating the merits of strengthening public support for restaurants that implement preventative measures during a public health emergency.

Fear

Fear has taken hold across the world in response to the COVID-19 pandemic (Ahorsu et al., 2020). Previous evaluations of fear have focused on uncertainty about avoiding imminent disaster, dangers, or threats, which ultimately connect with overblown estimates of the potential devastation of the risk (Yang and Chu, 2016). Fear may be viewed as either an affective predictor (Royzman et al., 2017) or as an affective expression (Buss and Goldsmith, 1998) and may increase individual awareness of the severity and likelihood of risks (Oh et al., 2020). Media coverage of the worldwide scale and scope of COVID-19 is currently amplifying psychological effects and prompting fear to spread throughout society (Presti et al., 2020).

Steele (2020) discussed the role of fear in human life and stated that "mentalizing" fear (coping effectively) could help to prepare for inevitable future pandemics.

Risk Perceptions

There is substantial literature on risk perceptions across diverse contexts, including hotel service (Sun, 2014), cruise tourism (Le and Arcodia, 2018), foodservice (Hwang and Choe, 2020; Wen and Kwon, 2017), and wine service (Bruwer et al., 2017; Bruwer and Cohen, 2018). Scholars have focused on "uncertainty perceptions," namely the unpredictability of environmental changes, as well as the challenges of understanding applicable factors and changes, which are critical to the study of risk perceptions in hospitality (Safón and Escribá-Esteve, 2011). Previous research has focused on factors affecting risk perceptions, including news media exposure (i.e., newspapers, TV news, and the internet), entertainment media exposure (i.e., drama and infotainment programs) (Oh et al., 2015), as well as socioeconomic determinants (such as age, gender, religion, income, and education) (Huynh, 2020), information processing (i.e., systematic mode and heuristic mode) (Tortosa-Edo et al., 2014), perceived information quality (Yi et al., 2013), personal experience (Wang, 2018 ; Mawby et al., 2019), and trajectory of perceived risk (Burns et al., 2012). Noting this extensive background as well as the unprecedented scale and severity of COVID-19, the current study focused on perceived risks amongst restaurant customers.

Risk perceptions relate to individual subjective judgments and evaluations about the likely occurrence of emergency situations, such as epidemics, hazards, and death (Slovic, 2000). Individuals partake in health prevention measures when there is a notion of susceptibility to acute risk (Rimal et al., 1999). As COVID-19 deaths have increased globally, there has been a growing urgency to understand risk perceptions (Van Bavel et al., 2020). COVID-19 is unfamiliar, invisible, involuntary, dreaded, and potentially deadly; therefore, perceived risk is triggered cognitively (Chakraborty, 2020). Risk perceptions are associated with public fears, rather than with the coronavirus itself. In seeking to manage public health risks effectively, it is essential to have a precise measurement of risk perceptions (Dryhurst et al., 2020). Risk characteristics relate to the likelihood and seriousness of consequences arising from the dissemination of information (Bonnet et al., 2012). Understanding public perceptions of the risks of COVID-19 that have been acquired through media is critical for shaping future behavioral changes (Lohiniva et al., 2020). Consequentially, research is needed to explore the cognitive component of risk perceptions in order to identify preventive behavioral solutions for emerging pandemics and other health emergencies.

Restaurant Preventive Behaviors

In the absence of a reliable and available COVID-19 vaccine, the best and only preventive measures against the pandemic are behavioral changes, namely public psycho-behavioral responses (Liao et al., 2019). Behavioral interventions to reduce the spread of COVID-19

include hand washing and social distancing as preventative measures (Wise et al., 2020), which may be viewed as coping strategies in health promotion and disease prevention. Persuading the public to observe particular behaviors has been proposed as a means of preventing infectious diseases (Fung and Cairncross, 2006). The most daunting challenges include motivating the public and sustaining the applicable behaviors (Kanadiya and Sallar, 2011). The current prevalence of media news coverage about COVID-19 offers the potential for restaurant customers to embrace preventive measures. Developing COVID-19 prevention behaviors can prospectively and sustainably promote the resilience of restaurant businesses.

A study on the MERS outbreak by Won et al. (2015) identified that the most frequent social media mentions were preventive behavior-related words such as wearing medical masks, keeping hands clean, and avoiding crowed places. Advocating preventive behaviors offers the prospect of supporting restaurants as they reopen. Providing safe consumption spaces (SCS) is a potential, evidence-based intervention for reducing COVID-19 infections. If the restaurant sector is to provide customers with SCS, prevailing COVID-19 prevention measures must be followed. Restaurant preventive behaviors offer a potential strategy to promote physical and mental health as well as address social manners and etiquette.

Confronted with the COVID-19 outbreak, the Taiwan Centers for Disease Control (CDC, 2020) announced and promoted public information about choosing restaurants that enact prevention and safety measures. This was done via television (TV) advertising, radio

broadcasting, posters, and online website news or videos. The information included reference to maintaining "social distancing by sparing a seat from the next diner, protecting each and every person by wearing a mask, taking temperatures, providing handwashing products in restaurants, facilitating tracking by keeping a record of customers, managing crowds, and sanitizing environments after every customer visit." Restaurants across Taiwan have largely followed and obeyed the proposed prevention measures. At the wider societal change level, the public is widely accepting to the fact that implementing such behavioral changes can instigate healthier lifestyles. Preventive health behaviors are greatly influenced by perceived risk (Pelullo et al., 2019). Noting that encouragement for sanitation and hygiene-related behaviors has contained previous infectious diseases, individuals can be easily educated about COVID-19 prevention measures, thereby reducing its wider impacts (Kanadiya and Sallar, 2011). Understanding preventive behaviors and risk perceptions towards COVID-19 is crucial for practicing disease prevention and enhancing risk awareness in the restaurant sector.

Conceptual Framework and Development of Hypotheses

As a prelude to developing and testing a research model, we conducted a comprehensive literature review of related fields that reflect current pandemic control conditions applicable to restaurants. The theoretical background and conceptual framework were grounded in risk communications, crisis management, and media studies, with particular application to the COVID-19 pandemic. This study used and extended three relevant theories to explain the

unexplored relationships among media exposure, media attention, fear, perceived risk, and restaurant preventive behaviors, namely the Stimulus-Organism-Response (S-O-R), Appraisal Tendency Framework (ATF), and Protection Motivation (PM) theory.

Media exposure is the most critical factor in raising concerns about the likelihood of an infection during a pandemic (Mesch et al., 2013). Specifically, Oh et al. (2020) identified that exposure to risk information via new media has a positive impact on fear (via Twitter, Facebook, blogs, or Instagram). However, an earlier study by Mesch et al. (2013) demonstrated a causal relationship between attention to media and concern about becoming infected during a global pandemic (i.e., the H1N1 influenza). Though the final duration and severity of COVID-19 is still unclear at the time of writing, it has already claimed more lives globally with relatively more confirmed cases than any other epidemic/pandemic in the postwar era. The rapid spread has prompted public anxiety, involving both physical and symbolic threats. For example, social distancing practices may undermine a sense of community or national identities (Kachanoff et al., 2020). Individuals who receive COVID-19-related information may experience an intense emotional response, including fear, possibly because of exposure to media messages about COVID-19. It is worth understanding whether effortful cognitive processing of COVID-19 media messages plays a part. Thus, Hypotheses 1 and 2 were proposed as follows.

H1: Media exposure to COVID-19 is positively related to fear.

H2: Media attention to COVID-19 is positively related to fear.

It is reasonable to assume that mass media influence viewer perceptions of risk during crises (Yoo et al., 2018). According to social representation theory, when society confronts a new phenomenon such as an epidemic, perceived risks are constructed through a sharing of ideas with a goal to elicit a response in mind (Washer, 2006). Ideas about threatening new phenomena are shared via channels in the public sphere through media discourse (Mondragon et al., 2018), individuals are informed about risks through media messaging and interpretations, and perceptions are shaped by the processing of risk-related information as a representation of risk salience (Chong and Choy, 2018).

An early study confirmed the effects of media exposure and attention on risk-related judgments (Slater and Rasinski, 2005). A more recent investigation of MERS in South Korea confirmed a positive relationship between incidental media exposure and perceived risk (Choi et al., 2017). Another study on the H1N1 influenza concluded that media exposure correlates positively with the associated risk characteristics (Oh et al., 2015). A recent paper reported that media communications intensify tourist perceptions of risk during a health crisis (Yu et al., 2020). An earlier investigation showed that the public has a skewed sense of health risks and that reader perceptions of threatening diseases are influenced by their use of mass media (Ackerson and Viswanath, 2010). Moreover, there is enhanced public attention to social issues when new (social) and traditional media coverage converges and interacts (Hunt and Gruszczynski, 2019). The current pandemic is more contagious than any previous equivalent

in the postwar era, and mortality rates far exceed those of the seasonal flu (The Washington Post, 2020). A study by Huynh (2020) on Vietnam showed that behaviors related to social media use have a positive influence on COVID-19 risk perceptions. Media have reported extensively on COVID-19, and reports on the risk of the disease are a key factor in the construction of perceived risks. This led to the formulation of two further hypotheses as follows.

H3: Media exposure to COVID-19 relates positively to risk perceptions.

H4: Media attention to COVID-19 relates positively to risk perceptions.

According to the appraisal tendency framework (ATF), emotions both arise from and elicit specific cognitive appraisals. Moreover, discrete emotions may mediate between cognitive appraisals and behaviors (Lerner et al., 2003). Based on the ATF, Yang and Chu (2018) found that risk perceptions about Ebola amongst the U.S. public were positively associated with fear. Furthermore, protection motivation (PM) theory (Tanner et al., 1989) and the PM model (Tanner et al., 1991) explain the formulation of PM as well as the role of fear in this process. PM theory explains how fear prompts individuals to change their behaviors. A protection motive may involve the intention to adopt or adhere to restaurant preventive behaviors for COVID-19. Turner and Underhill (2012) have asserted that emotions can directly cause preventive behaviors and may influence behaviors through risk perceptions.

Risk perceptions form part of an individual's decision-making process that influences subsequent behaviors (Williams and Noyes, 2007). Perceived risk causes compliance with

general health information for preventive behaviors. Those who view themselves as being at risk during COVID-19 may comply with directives such as "don't congregate in groups and keep social distance" (Mainous, 2020). Previous researchers (Brewer et al., 2004) have noted that protective behaviors increase as a result of perceived risk. A recent study has suggested that risk perception correlates with preventative behaviors in ten countries across Europe, North America, and Asia (Dryhurst et al., 2020). Oh et al. (2020) have also found that preventive behaviors are directly associated with self-relevant emotions and with risk perceptions at a personal level. During the SARS outbreak in Taiwan in 2003, the personal risk attitudes of restaurant diners were significantly associated with self-protective behaviors (Chuo, 2014). Now is the time to understand how risk perceptions and protective behaviors may prompt early interventions in the face of COVID-19 (Wise et al., 2020). This led to the following three hypotheses.

H5: Fear is positively related to risk perception of COVID-19.

H6: Fear is positively related to restaurant preventive behaviors.

H7: Risk perception of COVID-19 is positively related to restaurant preventive behaviors.

The Stimulus-Organism-Response (S-O-R) paradigm provides a foundation to examine the links among media, fear, perceived risk, restaurant preventive behaviors, and COVID-19. According to the S-O-R model, the external environment (i.e., stimuli) affects the internal

affections and cognitions of an individual (i.e., an organism), which in turn influence individual behaviors (i.e., response) (Mehrabian and Russell, 1974). Media exposure and attention provide the stimulus in the proposed framework, and the organism refers to affective and cognitive components, including fear and perceived risk. Response refers to restaurant preventive behaviors to COVID-19. Media exposure and attention evidently play stimulating roles and cause consumer preventive behaviors in an affective and cognitive organism. This process is mediated by internal processes that initiate the emotional fear and cognitive risk of an organism to prepare for COVID-19 preventive behaviors. Protection motivation theory may also explain motivations that arise through sources of communication, fear, risk appraisal, and coping behaviors. Restaurant customers who have been informed about COVID-19 preventive strategies/behaviors by reading or hearing traditional and/or new media might fear that failure to practice preventive behaviors will increase the risk of infection. The greater the severity of a health risk (e.g., COVID-19), the more likely that a motivation develops and that customers obey a recommended behavior, such as preventive behaviors designed for restaurants.
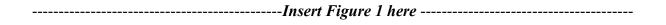
Yoo et al. (2018) found that social media impacts risk perceptions and that perceived risk impacts intentions to take preventative actions. Oh et al. (2020) established that social media exposure indirectly encourages preventive behaviors via the psychological mechanism of fear and perceived risk. Moreover, a qualitative inquiry based on interviews with Dutch authorities and experts concluded that media attention may support effective strategy responses and can

contribute to reducing the impacts of crises (Zoeteman et al., 2010). Theoretically, higher levels

of media attention may increase individual risk perceptions and motivate behavioral change

(Yanovitzky and Bennett, 1999). To date, few researchers have examined how fear elicited by

the use of traditional and new social media during COVID-19 can affect risk perceptions and

preventative behaviors. Consequently, hypotheses 8 and 9 (H8 and H9) were proposed as

follows.

H8: Media exposure indirectly affects restaurant preventive behaviors through (a) fear,

(b) risk perception, and (c) fear and risk perception of COVID-19 in sequence.

H9: Media attention indirectly affects restaurant preventive behaviors

through (a) fear, (b) risk perception, and (c) fear and risk perception of COVID-19 in

sequence.

--***Insert Figure 1 here*** --------------------------------------

Methodology

Sampling and data collection

A quantitative survey research design was adopted to examine the hypothesized model. In

the current context of the COVID-19 pandemic, it was appropriate to solicit responses using

online questionnaires and surveys in order to limit face-to-face contact and adhere to prevalent

social distancing requirements. This prompted us to collect online data using SurveyCake, a

trustworthy and world class cloud-based survey service that has assisted restaurant enterprises

to create professional online customer surveys. The website was open to the public in Taiwan from May 1 to May 31, 2020. A total of 366 responses were collected using convenience sampling. Participants were provided with a brief statement about the research purpose, data collection method, and legally required information about data protection (on a page prior to the start of the survey). On the final page, the researchers included a short statement stating that "clicking the final 'Submit' button means that respondents agree to participate in this research." Data analysis emanating from the study was confined to participants aged 18 years or over (respondents were asked to report their age). The online survey could generally be completed in 10 minutes.

Survey Characteristics

The survey instrument comprised two sections and drew from previous literature. In determining the construct items, we modified some expressions to accommodate the research context. Because the original questionnaire had been formulated in English, it was translated into Chinese by a professional bilingual translator before being back-translated by a bilingual third party to ensure content validity and improve meaning equivalency. A pilot study was conducted with 30 participants to ensure the readability of each item and that the duration of the online survey was appropriate. The first section of the questionnaire collected demographics such as gender, age, education, region, occupation, and frequency of visiting a restaurant. The second consisted of five constructs related to the hypotheses. All items were

assessed on a seven-point Likert-type scale (from 1 = strongly disagree to 7 = strongly agree).

There were 6 questions in the first section and 26 in the second section – a total of 32 questions

in all.

Media exposure was measured using six items from a scale by Hong et al. (2019).

Exposure to traditional media involved asking respondents how frequently they had read

newspapers and magazines, listened to the radio, and watched TV during the previous 3 months

(4 items). For new media exposure, respondents were asked the frequency of their internet use

as well as their social media (via a mobile device) use within past 3 months (2 items). The

media attention concept was adopted with three items drawn from Lee and Cho's (2019) scale.

Sample items included "I pay close attention to COVID-19" and "COVID-19 catches my

interest." The fear concept was adapted using five items from a scale by Zhang et al. (2019).

Exemplary items included "I feel anxious about COVID-19" and "I am fearful about COVID-

19." The risk perception concept used four items from a scale by Oh et al. (2015). Sample

questions were "The COVID-19 problem seems serious to me" and "I feel that COVID-19 is

dangerous." The preventive behavior concept item was modified using three items from a scale

by Oh et al. (2020) and five items from Lee and Cho (2019). Example questions were "While

dining out in a restaurant, I try to wash my hands or used hand sanitizer more often to prevent

the risk of COVID-19 infection." and "I am willing to choose restaurants that follow

preventative measures." Table 1 lists all items of the five constructs.

Analysis

Structural equation modeling (SEM) was conducted using AMOS 3.0 in order to assess the measurement properties of the scales and examine the hypothesized relationships. The maximum likelihood mean adjusted estimator was selected to resolve the problem of non-normally distributed data. Thus, several fit indices were provided to check the goodness-of-fit (Kline, 1998). Additionally, the mediation analysis was performed by percentile bootstrapping and bias-corrected percentile bootstrapping at a 95% confidence interval with 2,000 bootstrap samples.

Results

Most respondents in the sample were female (57.3%, n=210), between the ages of 21-30 (30.4%, n=111) and 41-50 (29.8%, n=109), and had a college education (55.7%, n=204). Most respondents lived in northern Taiwan (53.6%, n=196) and were employed in the services sector (22.7%, n=83), were students (14.2%, n=52), or were medical and healthcare employees (11.2%, n=41). The highest frequency of dining out was between 1-3 times per month (48.1%, n=176), followed by 4-6 times per month (23.2%, n=85).

Measurement Model Evaluation

The convergent and discriminant validity of the measurement model was first evaluated using a two-step approach (Anderson and Gerbing, 1988). The research hypotheses were then tested. The Confirmatory Factor Analysis (CFA) results, presented in Table 1, indicate that all

standardized loadings of the indicators exceeded 0.51, thereby providing strong support for the convergent validity of all measures. The Composite Construct Reliabilities (CCRs) ranged from 0.77 to 0.95 for the five constructs and were all above the 0.70 cut-off value (Fornell and Larcker, 1981). The Average Variances Extracted (AVE) for most constructs exceeded the 0.5 threshold, except in the case of media exposure and risk perception, which were marginally lower than the recommended criterion; therefore, they may be considered in aggregate to demonstrate convergent validity (Fornell and Larcker, 1981). Additionally, it is considered as evidence of discriminant validity when the square root of the AVE for each construct is higher than the correlations between the various constructs (Fornell and Larcker, 1981). As shown in Table 2, the AVE square roots for all constructs ranged between 0.50 and 0.90, exceeding the correlation between the construct and others. Thus, all constructs had acceptable levels of discriminant validity.

---*Insert Table 1 & 2 here* ----------------------------------

Structural Model Evaluation

Structural Equation Modeling was applied to test the hypothesized relationships in the model. The goodness-of-fit statistics indicated the chi-square of the structural model at 708.81 and df = 284. The other indicators of goodness-of-fit was also acceptable, with CFI = 0.93, GFI = 0.87, and RMSEA = 0.06, suggesting that the structural model represented the data structure well. According to Table 3, the results of the structural model showed that the effect of media

exposure had significant, positive impacts on fear and risk perception ($\beta = 0.11$, $t = 2.02$; $\beta = 0.12$, $t = 2.32$; respectively, all $p < .05$). The results suggest that higher media exposure increased fear and risk perception. Those who were exposed frequently to media coverage about COVID-19 tended to experience higher levels of fear and risk perception. Thus, H1 and H3 were supported. We had anticipated positive relationships among media attention, fear, and perception of risk, and these were indeed significant ($\beta = 0.29$, $t = 4.98$; $\beta = 0.33$, $t = 5.67$; respectively, all $p < 0.01$). Thus, media attention had positive effects on fear and risk perceptions, such that consumers tended to generate more fear and perceived risk when they paid attention to COVID-19 messaging. Thus, H2 and H4 were supported. Furthermore, it was found that fear significantly influenced risk perceptions ($\beta = 0.52$, $t = 8.41$; $p < 0.01$). The results suggest that consumers who perceived higher fear were more likely to increase their perceived risk. This finding supported hypothesis H5. However, H6 was not supported; the results indicate that fear had no significant effect on restaurant preventive behaviors ($\beta = 0.02$, $t = 0.27$). Finally, the relationship between consumer perceived risk and restaurant preventive behaviors was significant and positive ($\beta = 0.32$, $p < 0.01$), indicating that perceived risk by consumers increased preventive behaviors towards restaurants, which was consistent with the proposition of H7.

---*Insert Table 3 here* --------------------------------------

Testing of Mediation

We performed percentile and bias-corrected percentile bootstrapping at a 95% confidence interval. A total of 2,000 bootstrap samples were applied to test for indirect effects in the mediation models. In Table 4, the results of the bootstrap test did not confirm the existence of a significant mediating effect for fear between media exposure and customer preventative behavior (indirect effect = 0.02, p >0.05). Thus, hypothesis 8a was not supported. Consistent with our expectation, the mediating effect for perceived risk on the relationship between media exposure and customer preventative behavior was significant and positive (indirect effect = 0.11, p <0.05); thus, H8b was supported. Moreover, the results of the bootstrap test confirmed that exposure to media coverage indirectly affected customer preventive behaviors, first through fear and subsequently through perception (indirect effects = 0.06, p <0.05). Therefore, we posit that media exposure increased fear as well as perceived risk and in turn, enhanced customer preventive behaviors. Thus, H8c was supported.

With respect to customer preventive behaviors, the results show that fear had no significant mediating effect (indirect effect = 0.01, p >0.05); thus, H9a was not supported. However, the mediating effect for perceived risk between media attention and customer preventative behaviors was positive and significant (indirect effect = 0.12, p <0.01). An examination of the specific indirect effects indicates that perceived risk was a mediator because the 95% CI did not contain zero; thus, the results supported H9b. Finally, the findings demonstrate that media attention had a significant and indirect influence on preventive

behaviors as a consequence of fear and perceived risk (indirect effects = 0.04, p <0.01). In other

words, media attention led to greater fear and perceived risk and thereby enhanced customers'

preventive behaviors.

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Discussion and Implications

This study has proposed as well as empirically examined a theoretical model that extends

current knowledge about the effects of media on restaurant consumers' preventive behaviors

with respect to COVID-19. Specifically, we explored a) how exposure and attention to media

messaging relating to COVID-19 have an effect on affective and cognitive organisms and b)

the mediating roles of fear and perceived risk in the effects of exposure and attention to media

on restaurant consumers' preventive behaviors. It is noted that this study was conducted in

Taiwan during pandemic conditions and that the government and local people had learnt from

experiencing the 2002 SARS outbreak, resulting in a quicker and more effective response. The

proactive wearing of face masks occurred immediately, and the authorities turned their focus

to hospitals as well as monitoring movements of people. The Central Epidemic Command

Center (CECC) provided the public with COVID-19-related information and updates at its

daily press briefings. Public education was ensured through the extensive deployment of mass

media, such as television, radio, and social media.

This study gathered insights from Taiwanese consumers during extraordinary circumstances and generated meaningful findings. We found that the affective and cognitive organisms are influenced by both exposure and attention to media. These findings confirm previous observations about how media exposure and attention positively impact fears and perceived risk of consumers (Hong et al., 2019; Oh et al., 2020). Exposure and attention to media coverage about COVID-19, which inform the public effectively about the associated risks, evoke intense fear-related emotions. Moreover, when the effects of media attention and media exposure were compared, the former evidently has a relatively stronger effect on consumer fears and perceived risk. Consumers have greater fear and perceived risk when they pay attention to COVID-19 messages, compared to merely being exposed to COVID-19-related information. We should view exposure and attention as closely linked media effects, rather than as separate or independent effects.

Our finding that individuals' perceived risk is significantly impacted by fear is consistent with and supported by previous studies (Paek et al., 2016; Yang and Chu,2016). Because fear is one of the strongest emotions, it is unsurprising that the perceived seriousness of the risks of COVID-19 is magnified when it is present. The current study findings have also shown that perceived risk positively influences restaurant preventive behaviors, whereas fear did not exhibit such a direct effect. This suggests that the role of perceived risk may be of greater importance than fear when engaging in COVID-19 preventive behaviors in restaurants, with

particular importance attributable to the nature of COVID-19-related risks. A variety of factors affect risk, including probability, severity, controllability, dread, catastrophic potential, and unfamiliarity with a hazard (Renn and Rohrmann, 2000). During the initial stages of the COVID-19 outbreak, medical findings about the spread of the virus were inconclusive, thereby exacerbating fears about unknown and potentially catastrophic consequences. There was even palpable fear of imminent death amongst populations who were at minimal risk of infection and hospitalization. This may be associated with individuals who were subject to particular internal factors (e.g., psychological profiles). In the event of a new, unobservable, and unpredictable hazard such as COVID-19, it is evident that preventive behaviors are shaped by individuals' subjective understandings of risk.

Finally, the results indicate that perceived risk was a consistently significant mediator between media exposure and restaurant preventive behaviors and between media attention and restaurant preventive behaviors. Exposure and attention to COVID-19 related media messaging not only prompted consumers to perceive the risks more seriously and engage in more preventive behaviors, but this exposure and attention also elicited fear that increased consumers' perceived risk and prompted them to participate in more preventive behaviors. From a methodological and interpretative perspective, the current study suggests that the inconclusiveness of previous research about fear as a prospective mediator (e.g., finding by Oh et al., 2020) may arise from a deficient explanation of the mediating mechanism. Media may

increase the salience of a particular affective organism - fear. The same salient organism may be applicable through the cognitive organism, i.e., risk perception, when people engage in restaurant preventive behaviors towards COVID-19.

Theoretical Implications

Conducting this study during the COVID-19 pandemic allowed the formulation of theoretical implications concerning media effects in communications. We addressed the inadequacy of previous research on how exposure and attention to media affect the responses, perceived risk, and preventive behaviors of restaurant consumers during health crises. In addressing nine hypotheses, we explored how preventive behaviors of restaurant consumers are influenced by exposure and attention to both traditional and new media communications. We have also shown how media exposure and attention affect customers' perceived risk and emotional responses, which then predict COVID-19 preventive behaviors. We note the importance of considering both exposure and attention in the explanation of subtleties that are required when seeking to abate perceived risk.

The study findings are novel in hospitality because they indicate that attention to media has a relatively stronger effect on consumer fears and perceived risk than exposure. In identifying a close link between media exposure and attention, we found that fear enhances the perceived seriousness of COVID-19-related risks. We demonstrate that whilst the cognitive organism of perceived risk positively influences preventive behaviors to restaurants, this direct

effect was not evident in the case of the affective organism of fear. Perceived risk is evidently more important than fear in engaging in COVID-19 preventive behaviors in restaurants. The particular importance of perceived risk in predicting preventive behaviors may be attributable to the specific types of COVID-19-related risks, notably the fact that the virus can be spread via asymptomatic carriers (Ye et al., 2020). Despite attempts by relevant authorities to reassure populations about effective tracing and testing, there are lingering consumer fears that the measures for mitigation are insufficient, thereby posing major risk perceptions.

Perceived risk is a significant mediator between media exposure and restaurant preventive behaviors and between media attention and restaurant preventive behaviors. Exposure and attention to media messaging about COVID-19 prompt consumers to take perceived risks more seriously and engage in more preventive behaviors. A particularly notable finding was that media indirectly affect restaurant preventive behaviors for COVID-19 through a sequence of fear and perceived risk. Media exposure and attention indirectly influence preventive behaviors of restaurant consumers through the cognitive organism as well as through the combined affective and cognitive organism but not through the affective organism alone. Consumer fears are elicited by exposure and attention to media messaging about COVID-19, thereby increasing their perceived risks and prompting more preventive behaviors. Media can evidently increase the salience of the affective organism of fear.

Practical Implications

Our research findings offer potential directions for individual restaurants, chains, and associations to revise their media communication strategies for COVID-19 and future health crises. The digital age and other disruptions had already been shaking the restaurant industry prior to the pandemic, making a reevaluation of media communication strategies long overdue. Apps were already prompting restaurants to embrace home food delivery, a trend that has been accelerated by COVID-19 as consumers seek to minimize social interactions associated with in-restaurant dining. The combined challenges of the pandemic and digital disruptions should prompt restauranteurs to embrace a more macro level and interconnected level mindset that include media communications and extend beyond the confines of individual brick-and-mortar enterprises. The merit of recognizing the connections extends to restaurant associations that are managing interrelated issues, including business disruptions and resilience, health challenges, cash flow, and even the mental health of staff. More proactive liaising with governments and health authorities should also be considered during pandemic conditions, and restaurants should deploy media communication channels to mobilize key opinion leaders who are social media active.

Though many restaurants rely primarily on local customers, and thus focus on the health-related fears of this group, the unprecedented curtailing of global travel highlights that communicating and implementing hygiene protocols cannot be separated from what is happening across jurisdictions and subsectors of tourism and hospitality beyond restaurants.

The current findings can potentially inform restaurant owners and operators of the interplay among different media, consumers, and subsectors across tourism and hospitality. In determining the most applicable media strategy to shape consumer behaviors and attitudes, restaurants could take action as individual outlets, chains, and/or brands, or in consortia with other foodservice providers. The preceding research suggests that effective messaging will involve a blend of new and traditional channels.

Although risk-related communications have attracted widespread scholarly interest, closer attention from restaurant associations and policymakers is merited (Malecki et al., 2020; Regan et al., 2016). The cognitive responses of restaurant consumers should be considered when managing health crises. Communicating and stimulating preventive behaviors through the pandemic via media exposure and attention could enhance risk awareness amongst restaurant consumers. It could also build confidence as restaurants progressively recover from their devastated cashflows, incomes, and employment.

Despite the fact that many jurisdictions have promoted COVID-19 strategies such as social distancing, good hygiene, and mask wearing to combat infection rates, restaurant closures have still been commonplace (Ataguba and Ataguba, 2020). In the context of restaurant closures or operational restrictions, effective communications regarding risk through the media have been needed to ensure preventative customer behaviors. Evidence suggests that the incidence of restaurant closures may fall when governments, health authorities, and

consumers are assured about careful and deliberate operations. Effective restaurant business operations will benefit from appropriate media exposure and attention. This will involve understanding COVID-19 risk perceptions and adopting appropriate preventative behaviors. Local authority regulations impact both restaurant operations and customers as well as contribute to the risk communications "ecosystem." The applicable procedures and their consequences should be proactively communicated. Restaurants should be informed about the potential impacts of changing regulations (e.g., social distancing requirements) and their communication with current and potential customers, in which restaurant associations can also play a role.

The COVID-19 experience is a reminder that restaurant associations have an opportunity to represent collective interests more proactively through new and traditional media channels. In a situation where fear quickly gathers momentum, it is critical that media provide clear, reliable, and accurate information about the pandemic for both exposure and engagement. Whether viewers or readers trust media advice as accurate and/or appropriate could impact attitudes and behaviors, including those towards personal health risks.

Limitations and Opportunities for Future Research

Because the current study was conducted during a dynamic and volatile pandemic, it may lack the depth that is present in longitudinal studies. Furthermore, the investigation may be somewhat culture and place specific and may not be generalizable, having been conducted in

a single jurisdiction, Taiwan. The applicability of the findings to other settings was not tested, though we drew upon findings from previous health crises. Future researchers are encouraged to broaden these findings by undertaking equivalent investigations elsewhere. Deeper consumer insights may also be acquired by seeking qualitative verification of the beliefs of restaurant customers who disregard protective measures. Finally, potential variability in the relationship between perceived and actual risks over time should be considered, especially in situations of scientific progress (e.g., understanding the spread of the virus and/or discovering a vaccine).

This investigation coincided with a period of media volatility as well as an unprecedented pandemic. Disruptions to media practice extend to settings such as Taiwan, where public opinion is highly polarized in the face of a growing and assertive China. Partisanship has also grown as a result of new media and the shift from mainstream broadcast news to "narrowcasting" around more select and niche audiences. Identities and values may shape consumer attitudes to risk and susceptibility to fear. Despite being a health-related issue, mask-wearing practice has split along partisan lines, most notably in the U.S.A. These contextual issues suggest that future researchers can usefully explore consumer values, attitudes, and behaviors during crises as well as their impacts on media risk communications.

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