Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
How generations differ in coping with a pandemic: The case of restaurant industry

Jihye Min*, Jiyoung Kim, Kiseol Yang

College of Merchandising, Hospitality and Tourism, University of North Texas, Denton, TX, 76203, USA

ARTICLE INFO

Keywords:
Protection motivation theory
Generation theory
Value co-creation
COVID-19
Restaurant industry
Consumer behavior

ABSTRACT

The COVID-19 outbreak has had a negative impact on the restaurant industry and led to major sales and job losses. As it continues to threaten customers’ health, it is expected to greatly influence their attitudes and behavior. Therefore, the current study aims to investigate the effects of threat and coping appraisals on consumers’ co-creation behaviors during the COVID-19 pandemic. Grounded in protection motivation theory and co-creation theory, the moderating effect of generational cohorts is also investigated vis-à-vis the relationships between protection motivation appraisals and co-creation behaviors in the restaurant industry. Individuals between 18 and 55 years of age completed survey regarding their dine-in experience during the COVID-19 pandemic. The study indicates that customers’ perceived severity, self-efficacy, and response efficacy are significant predictors of customers’ co-creation behaviors during the COVID-19 pandemic. The study provides important theoretical and practical implications for the field.

1. Introduction

The outbreak of the coronavirus pandemic in 2020 has had a variety of social and economic impacts affecting a number of service industries. According to the National Restaurant Association (NRA) (2020), the restaurant industry has been one of the industries most negatively impacted by the COVID-19 pandemic, undergoing major sales and job losses. As of June 2020, stay-at-home orders and mandatory business closures have eased across the U.S., and restaurants have began operating their businesses again with the adoption of new health and safety measures (NRA, 2020). However, the COVID-19 outbreak continues to be a threat to consumers’ health, and it is expected to influence customers’ attitudes and behavior at restaurants greatly. Further, the spread of the virus is dependent in part on human behavior; therefore, collaboration for risk management and prevention between service providers and consumers is necessary (Cho et al., 2016). Hence, consumers’ perceived coping and threat appraisals regarding the current pandemic situation may influence the likelihood that they will visit a restaurant and their intention to engage in co-creation behaviors.

Co-creation behavior includes the adoption of behavior recommended by service providers (i.e., participation behavior) and voluntary support of the service provider and other customers (i.e., citizenship behavior) (Groth, 2005; Yi et al., 2011). In the context of the current crisis of COVID-19, consumers’ co-creation behavior may be critical for restaurants’ operations as joint efforts between service providers and customers are necessary for customer safety and satisfaction. However, with the ongoing threat of COVID-19, how consumers perceive risk may influence their attitude toward service providers and their intention to engage in co-creation behaviors.

In this context, Protection Motivation Theory (PMT) may be useful for understanding how consumers’ perception of a threat and their ability to cope with the threat influence their behavior. PMT is frequently used in predicting health-protective behaviors in the context of various health threats, such as a flu pandemic (Cho & Lee, 2015; Sturges & Rogers, 1996; Teasdale et al., 2012). PMT holds that an individual’s cognitive process in assessing a threat and appraising her or his ability to cope results in protective actions (Burns et al., 2017; Zhao et al., 2016). Hence, consumers’ perceived coping and threat appraisals regarding the current pandemic situation may influence the likelihood that they will visit a restaurant and their intention to engage in co-creation activities. However, our understanding of changing consumer behavior in response to disease outbreaks in the restaurant
context remains limited.

The COVID-19 pandemic has had differing impacts on generational cohorts due to the risk associated with older age. According to the Centers for Disease Control and Prevention (CDC), the risk of being hospitalized for COVID-19 increases for older people. Members of younger generations reported that the need for prevention did not impact their behavior greatly as they perceived the risk to be low (CDC, 2020). Additionally, members of younger generations, such as Generation Z (i.e., individuals born after 1995), were particularly vulnerable to job loss and exposure to the coronavirus compared to members of older generational cohorts, as they were overrepresented in high-risk service sector industries such as restaurants (Parker & Igielnik, 2020). This suggests that there may be differences in risk perception among members of different generational cohorts.

Therefore, the present study aims to contribute to the limited literature by examining the effects of threat appraisals (i.e., perceived vulnerability, perceived severity) and coping appraisals (i.e., self-efficacy, response-efficacy, response cost) on consumers’ co-creation behaviors (i.e., citizenship behavior and participation behavior). Additionally, the moderating effect of the generational cohort (i.e., generation X, generation Y, and generation Z) on the relationships between protection motivation appraisals and co-creation behaviors is investigated in the context of the restaurant industry during the COVID-19 pandemic.

1.1. Theoretical background

1.1.1. Protection motivation theory

Protection Motivation Theory (PMT) was originally proposed by Rogers (1975) to explain the adoption of protective behaviors in the presence of a threat stimulus. According to Rogers (1975), PMT involves three key considerations: (a) the magnitude of noxiousness of a deplorable event; (b) the probability of that event’s occurrence; and (c) the efficacy of a protective response” (Rogers, 1975, p. 93). The theory has been adopted and revised in later studies, such as Burns et al. (2017) and Zhao et al. (2016) to explain an individual’s protective action as a result of his/her cognitive process of assessing a threat and making coping appraisals under certain conditions. Burns et al. (2017) explain that threat appraisal consists of three components: threat vulnerability, threat severity, and maladaptive rewards. Threat vulnerability is the perceived probability that a threat will occur, and threat severity involves the perceived seriousness of the threat’s consequences. Maladaptive rewards relate to the perceived benefits of not adopting the recommended protective behaviors (Maddux & Rogers, 1983; Rippetoe & Rogers, 1987). Likewise, Burns et al. (2017) propose three subconstructs of coping appraisal: self-efficacy, response efficacy, and response costs. Self-efficacy is an individual’s perceived ability to follow recommended behaviors. Response efficacy involves the perceived effectiveness of responses or recommended behaviors, and response costs are the individual’s perceived costs from following recommended behaviors (Burns et al., 2017, p. 193).

The application of PMT in predicting health-protective behaviors has been widespread (Cho & Lee, 2015; Sturges & Rogers, 1996; Teasdale et al., 2012). In the context of a global health threat, Cho and Lee (2015) used PMT to investigate the role of self-efficacy beliefs, risk perception, and social norms in shaping the behavioral intentions of self-protection behavior during the H1N1 pandemic in 2009 and 2010. The authors found that individuals’ social principles and cultural systems influenced the way risks were perceived and self-protection reactions were shaped (Cho & Lee, 2015). Further, several studies have demonstrated the influence of threat and coping appraisals on consumers’ behavioral intentions. Zhao et al. (2016) found significant impacts of perceived severity, perceived vulnerability, self-efficacy, and response efficacy on consumers’ intentions to engage in household green behaviors of low usage (i.e., control of water and electricity use and overall consumption at home) and high cost (i.e., recycling and switching to ecological products) under threats of environmental deterioration. Nabi and Myrick (2019) also found increased consumption of sunscreen products as a form of health-protective behavior under the threat of skin cancer.

In the restaurant context, Choi et al. (2011) found that protection motivation measures, particularly response efficacy and self-efficacy, were significant predictors of consumer behavior when consumers chose a restaurant based on inspection reports. Lee et al. (2019)’s study also found that perceived vulnerability, self-efficacy, and response-efficacy significantly influenced consumers’ risk perception when they visited ethnic restaurants. In the current situation under the threat of the COVID-19 pandemic, drastic changes in consumer behaviors are expected. Based on a review of previous literature, the current study proposes that consumer behaviors are influenced by the cognitive processes of threat and coping appraisals under the condition of the current COVID-19 pandemic.

1.1.2. Co-creation behavior

Within the service industry context, there has been an increased interest in collaborations between customers and providers in co-creating value and delivering unique experiences (Im & Qu, 2017). According to McColl-Kennedy et al. (2012), value co-creation is defined as the “benefit realized from (the) integration of resources through activities and interactions with collaborators in the customers’ service network” (p. 375). Prahalad and Ramaswamy (2004) also explain co-creation as the customers’ process of personalizing, defining, and shaping their experiences, in cooperation with the service provider. Thus, value co-creation behavior is often conceptualized as a series of activities customers undertake during service exchanges; it is seen as critical to the success of businesses’ efforts to provide unique experiences (Chathoth et al., 2016).

In a pivotal study of customers’ value co-creation behavior, Yi and Gong (2013) suggest that such behavior is a multi-dimensional construct. The authors’ typology posits two dimensions in value co-creation behavior: customers’ participation behavior and citizenship behavior. Customers’ participation behavior is described as a behavior that is required for successful value co-creation, while customer citizenship behavior is considered a voluntary behavior directed toward the service provider and toward other customers (Groth, 2005; Yi & Gong, 2013; Yi et al., 2011). When customers co-create value through participation and citizenship behaviors, they provide a strong competitive advantage for the service provider and improve the experience the latter provides (Ahn et al., 2020).

Yi and Gong (2013) posited four dimensions of customer participation behavior: information seeking, information sharing, responsible behavior, and personal interaction. First, information seeking helps customers to reduce uncertainty, become familiar with the co-creation environment, and more easily become integrated into the value co-creation process. Second, by sharing accurate information with employees, consumers ensure that their needs and expectations are addressed. Third, responsible behavior involves the recognition of the responsibilities by consumers as co-creators. This suggests that there are some policies and guidelines consumers must adopt if there is to be a successful value co-creation process (Roy et al., 2020). The last dimension is the personal interaction between the consumer and employees—a positive and respectful environment is key to customer participation behavior.

Further, consumer citizenship behavior consists of four dimensions: feedback, advocacy, helping, and tolerance (Yi & Gong, 2013). Feedback is the information that consumers provide to employees, either requested or unrequested, to help them improve service processes. Advocacy involves recommending the business or provider to others. A common example of advocacy is positive word-of-mouth (Lee et al., 2017). The third dimension involves helping other consumers by providing information or assistance about the service provider (Roy et al., 2020). Finally, tolerance represents the willingness to forgive the service provider when the service expectations are not met, as in the case of service...
behavior as a better way to face crises and help others during their crises by engaging in other-focused behavior. Fischer et al. (2006) based on the society adjustment for the common benefit. As each individual influences their participation behavior.

1.2. Hypothesis development

PMT is one of the most important cognition models employed for behavior prediction (Milne et al., 2000). Previous studies have found that a higher perceived severity of a threat and perceived vulnerability lead to higher intentions to engage in protective behaviors, such as consumption of health-protective products (Nabi & Myrick, 2019) and changes in smoking behaviors by adolescents (Pechmann et al., 2003). Further, several authors have applied PMT within the context of health threats during pandemics (Cho & Lee, 2015; Prati et al., 2012; Teasdale et al., 2012). Teasdale et al. (2012) found that intentions to engage in the government’s recommended behaviors (i.e., staying home when ill and continuing to work when well) were significantly influenced by the variables of PMT. The study found that intentions to stay home when people were ill were positively related to perceived risk, self-efficacy, and response efficacy, whereas those intentions were negatively related to response costs. On the other hand, intentions to keep working when people were well were positively affected by self-efficacy and response efficacy, whereas they were negatively related to perceived risks and response costs (Teasdale et al., 2012). In the same vein, Prati et al.’s (2012) research provided an account for recommended behaviors proposed during the influenza H1N1 pandemic, based on the concepts of PMT. Their research provided evidence of the effects of perceived seriousness, the likelihood of infection, personal impact, and the severity of the illness on the adoption of recommended behaviors. Based on the previous literature’s support for the influence of perceived severity, perceived vulnerability, self-efficacy, response-efficacy, and response cost on engagement behavior, we propose that a similar relationship will be found with regard to the current COVID-19 pandemic. The level of participation in value co-creation behavior within the restaurant setting will be determined by customers’ assessment of the threat and their coping appraisals. We propose the following hypotheses:

H1a. Consumers’ perceived severity of the COVID-19 threat influences their participation behavior.
H1b. Consumers’ perceived vulnerability to the COVID-19 threat influences their participation behavior.
H1c. Consumers’ perceived self-efficacy in coping with COVID-19 influences their participation behavior.
H1d. Consumers’ perceived response-efficacy in coping with COVID-19 influences their participation behavior.
H1e. Consumers’ perceived response cost in coping with COVID-19 influences their participation behavior.

Previous research indicates that people might perceive collective behavior as a better way to face crises and help others during their adjustment for the common benefit. As each individual’s coping resources and competencies influence her/his adaptation process during times of crisis (Burns et al., 2012), adaptation occurs as a social process based on the society’s ability to behave collectively (Adger, 2009). In a similar vein, Burns et al. (2017) propose that people may cope with crises by engaging in other-focused behavior. Fischer et al. (2006) further suggest two major cognitive thinking processes that take place before an individual makes a decision to help others during a crisis. The first step includes an assessment of the situation (i.e., determining perceived vulnerability and perceived severity of danger). When a situation is perceived as serious, people will be more likely to help others. The second step in the process involves selecting a course of action, based on the individual’s assessment of the cost of helping others, the benefit created, and the likelihood of getting help from others (Fischer et al., 2006). As some individuals may lack the knowledge, skills, or resources required to provide assistance, the course of action is directly related to their coping appraisals (i.e., self-efficacy, response efficacy, and response cost) (Maddux & Rogers, 1983).

While previous studies provide a logical foundation that connects PMT concepts with collective behavior, there is a unique factor in the current COVID-19 pandemic that may alter the relationship. As COVID-19 poses risks associated with social interaction, the resulting fear might play a significant role in individuals’ decisions regarding whether or not to engage in citizenship behavior. Such risks associated with social interaction may prevent restaurant customers from helping other customers. Therefore, the current study proposes to test the influence of protection motivation appraisals on customers’ intentions to engage in customer citizenship behavior. Hence, the following hypotheses are proposed:

H2a. Consumers’ perceived severity of the COVID-19 threat influences their citizenship behavior.
H2b. Consumers’ perceived vulnerability to the COVID-19 threat influences their citizenship behavior.
H2c. Consumers’ perceived self-efficacy in coping with COVID-19 influences their citizenship behavior.
H2d. Consumers’ perceived response-efficacy in coping with COVID-19 influences their citizenship behavior.
H2e. Consumers’ perceived response cost in coping with COVID-19 influences their citizenship behavior.

As services are simultaneously produced and consumed in restaurants, customer cooperation (i.e., participation behavior) is a key factor in ensuring a positive service process (Zeithaml et al., 2006). Employing the value co-creation framework, Erçey (2017) indicated that value co-creation involves co-produced offerings created through company-customer interactions as well as consumer-consumer interactions. Rosenbaum and Massiah (2007) suggested that consumers’ participation, cooperation, and loyalty are forms of organizational citizenship behavior, which is embedded within consumers’ voluntary performances. This conceptualization of consumer voluntary behavior is in line with the findings of Bettencourt (1997) and Yi and Gong (2013) that there is an intrinsic relationship between participation behavior and citizenship behavior. Customer participation behavior may need to be enhanced to trigger customer citizenship behavior (Groth, 2005). Therefore, it can be assumed that company-customer interactions take preeminence over customer-customer interactions in consumer behavior. Hence, this study proposes the following hypotheses:

H3. Consumers’ participation behavior influences citizenship behavior.
H4. Customers’ participation behavior mediates the relationship between protection motivation appraisals and citizenship behavior.

1.3. Generational cohorts

Generational cohort theory has been used widely to examine consumer behavior (Shulga et al., 2018). It posits that people who were born during the same time period go through similar life events; thus, their values and belief systems resemble each other (Carpenter et al., 2012, p. 413). Additionally, it is generally accepted that these systems may differ among different cohorts and are often the main drivers of individuals’ attitudes and behavior (Schewe & Noble, 2000).

Generation X includes people who were born from 1965 to 1980. According to previous research, this cohort is characterized by creativity, independence, and flexibility (Pendergast, 2010). Individuals born between 1981 and 1985 are considered members of Generation Y, also known as Millennials. Millennial consumers have been strongly associated with technical knowledge and trust in technology, which constitutes significant elements of their relationship with service
providers (Obal & Kunz, 2013). Members of Generation Z, also called post-Millennials, are individuals who were born in 1996 or later (Soares et al., 2017). The majority of Generation Z members are characterized by their participation and interest in social movements, such as transgender rights and feminism. Members of Generation Z tend to perceive themselves as more accepting and open-minded than those of any other generation (Kasabov & Hain, 2014).

Previous studies have found that generations influence customers’ intentions to engage in co-creation behaviors. For example, Shulga et al. (2018) gave important insights into the role of the generation in the relationship between co-outcomes (i.e., satisfaction, loyalty, and trust) and value co-creation. Their research on hotel customers found that Millennials were likely to contribute to different co-creation processes as compared to Generation X members (Shulga et al., 2018). Further, while members of Generation X preferred the company to initiate co-creation practices, Millennials did not prefer the company to send a direct invitation to them. Rather, Millennials engaged easily in co-creation behaviors in order to enhance their experience (Shulga et al., 2018). While prior research has provided findings on generational differences in customers’ co-creation practices, it remains to be discovered whether there is a generational difference in how they perceive risk and how risk influences their co-creation behaviors.

According to Ferrer et al. (2018), risk perceptions are based on learned associations and are closely linked to previous experiences. This suggests that different generations’ intentions to engage in protective behavior may vary as each generation possesses a unique set of values and beliefs. For example, Generation X members and Millennials were directly hit by the social, political, and economic aftermath of the 9/11 terrorist attacks in 2001, while most members of Generation Z were too young to understand the magnitude of the event (Soares et al., 2017). Also, Millennials entered the workforce facing the height of an economic recession in 2008, which strongly influenced their beliefs, attitudes, and behavior. On the other hand, members of Generation Z were born in the digital era and are often stereotyped as anti-social individuals or social justice warriors (Soares et al., 2017). As members of Generation Z grew up in a strong economy with a low unemployment rate, the COVID-19 pandemic is likely to be one of the most significant events that have affected them. Accenture (2020) also reported important changes in consumer profiles during the COVID-19 pandemic based on age. According to that study, members of Generation Z tend to focus on themselves and worry about maintaining self-comfort, while Millennials focus on helping others and their community and are very aware of the situation and of recommended health products. Moreover, members of Generation X have been found to carry on “business as usual” and to be less likely to engage in health-protective recommended behaviors (Accenture, 2020). This indicates that members of different generations may have distinct views on the risk associated with COVID-19 and may respond to the event differently (Parker & Igielnik, 2020). Therefore, the current study proposes the following hypotheses and the conceptual model can be found in Fig. 1.

H5. Generation significantly moderates the relationship between consumers’ protection motivation appraisals (a. perceived severity, b. perceived vulnerability, c. self-efficacy, d. response-efficacy, e. response cost) and participation behavior.

H6. Generation significantly moderates the relationship between consumers’ protection motivation appraisals (a. perceived severity, b. perceived vulnerability, c. self-efficacy, d. response-efficacy, e. response cost) and citizenship behavior.

2. Methodology

2.1. Data collection

Participants were recruited through the online survey company, Qualtrics. Participants who had had no dine-in experience during the COVID-19 pandemic were excluded from the study. Also, members of the generation with the highest health risk (i.e., baby boomers) were excluded from the study to make possible valid comparisons among generations categorized as low risk by the CDC. As a result, a total of 310 valid surveys were collected, and the participants were individuals between 18 and 55 years of age. The participants were asked questions about their perceived COVID-19 risks and the severity of those risks, their perceived ability to cope with the threats, and co-creation behaviors. The sample was composed of 72.3% females and 27.7% males. Among the respondents, 44.5% were from Generation Z, 33.5% were from Generation Y, and 21.9% were from Generation X. 37.1% responded that they had a bachelor’s degree or higher. Respondents had incomes under $59,999 (57.1%), $60,000 to $99,999 (23.5%) and $100,000 or above (19.4%).
2.2. Measurement and data analysis

The current study developed a questionnaire and constructs based on the studies by Zhao et al. (2016), Burns et al. (2017), and Yi and Gong (2013). First, items measuring perceived severity and vulnerability from Zhao et al. (2016) were employed. Self-efficacy, response-efficacy, and response cost measures were adopted from Burns et al. (2017). Lastly, customers’ participation and citizenship behavior items from Yi and Gong (2013)’s study were used. For all items in the questionnaire, a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) was used.

The current study performed structural model analysis using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with a bootstrapping method. The method is useful for testing the statistical significance of path coefficient weights and loadings (Chin et al., 2008). Particularly, PLS-SEM has gained popularity in recent years and is widely used in social science studies due to its ability to measure latent variables under non-normality conditions or using small sample sizes (Hair et al., 2013). R² is used to estimate the explanatory power of the constructed model in the study (Wasko & Faraj, 2005). Results have indicated that perceived severity, perceived vulnerability, self-efficacy, response-efficacy, and response cost explain 16.7% of customer participation behavior, while the five dimensions of protection motivation behavior and participation behavior explain 21.1% of the total variance in citizenship behavior. This indicates that the current structural model has moderate validity (Chin et al., 2008).

3. Results

3.1. Measurement model

Table 1 represents the construct validity and the reliability test results of all measurement items in the study. First, factor loadings were ensured with p-values less than 0.01 and loadings above the recommended value of 0.6, indicating reliability of the measurements (Chin, 1998). Further, composite reliability (CR) indicated values between 0.83 and 0.91, and the average variance extracted (AVE) ranged from 0.60 to 0.77. All figures exceeded the thresholds of 0.7 (CR) and 0.5 (AVE), ensuring the reliability of the measurements. Additionally, a test of discriminant validity was performed for all constructs, and corresponding constructs’ square rooted AVE figures were compared (Ramayah et al., 2013). The figures for each construct were higher than the other constructs’ square roots of AVE figures, so discriminant validity was confirmed. The results of the test of discriminant validity can be found in Table 2. Therefore, the proposed model and the constructs in the study were satisfactory in terms of convergent validity and reliability.

3.2. Hypothesis tests

Fig. 2 and Table 3 show the detailed results of the structural equation modeling for hypotheses H1-H4. For H1a-H1e, the study tested the relationships between customers’ protection motivation behaviors and their participation behavior. Among the five dimensions of protection motivation behavior, perceived severity, self-efficacy, and response cost were found to have significant effects on customers’ participation behavior, supporting H1a, H1c, and H1d (β = 0.13, p < 0.05; β = 0.16, p < 0.01; β = 0.16. p < 0.01, respectively). On the other hand, H1b and H1e were not supported (β = 0.06, p > 0.05; β = 0.03, p > 0.01, respectively), indicating that perceived vulnerability and response cost did not significantly influence customers’ participation behavior. In H2a-H2e, the study examined whether the consumers’ protection behavior influenced their citizenship behavior. The results showed that all the hypotheses were supported (H2a: β = -0.14, p < 0.05; H2c: β = 0.15, p < 0.01; H2d: β = -0.12 p < 0.05; H2c: β = 0.09 p < 0.05, respectively), except H2b (β = 0.02, p > 0.05). Additionally, participation behavior was found to be a significant predictor of customers’ citizenship behavior; thus, H3 was supported (β = 0.42, p < 0.01).

In H4, the study tested the mediating role of customers’ participation behavior. The results revealed that H4 was partially supported as participation behavior significantly mediated the effects of perceived severity, self-efficacy, and response efficacy on citizenship behavior (β = 0.06, p < 0.05; β = 0.07, p < 0.01; β = 0.11 p < 0.01, respectively),

Table 1

| Construct                        | Loading | CR  | AVE  |
|----------------------------------|---------|-----|------|
| Perceived severity               | 0.84    | 0.72|
| Our society is threatened by COVID-19 & economic situation is getting worse due to COVID-19 | 0.80    | 0.90|
| Perceived vulnerability          | 0.84    | 0.63|
| Our society is vulnerable to the harmful effects of COVID-19 | 0.87    |     |
| Our society is a victim of COVID-19 | 0.83    |     |
| The next generation will be negatively affected by COVID-19 | 0.68    |     |
| Self-efficacy                    | 0.86    | 0.60|
| I know how to take precautions against COVID-19 in everyday life | 0.74    |     |
| I am able to find ways to deal with COVID-19 in everyday life | 0.74    |     |
| I know how to deal with the situation under COVID-19 | 0.82    |     |
| I believe I can manage unexpected situations that COVID-19 might bring about | 0.79    |     |
| Response-efficacy                | 0.85    | 0.62|
| I am sure that our measures to respond to COVID-19 can have a positive effect on curving its impact | 0.74    |     |
| I am confident that together we can cope with situation under COVID-19 | 0.91    |     |
| We can do nothing to help control the situation under COVID-19 | 0.70    |     |
| Response cost                    | 0.87    | 0.77|
| It is very time-consuming for our society to follow the measures to respond to COVID-19 | 0.80    |     |
| Too much effort is needed for our society to follow the measures to respond to COVID-19 | 0.80    |     |
| Participation behavior           | 0.88    | 0.65|
| I performed all the tasks that are required (e.g., face covering, social distancing and hand sanitizing) | 0.80    |     |
| I adequately completed all the expected behaviors | 0.86    |     |
| I fulfilled responsibilities to the service provider | 0.81    |     |
| I followed the restaurant’s rules or regulations | 0.74    |     |
| Citizenship behavior             | 0.91    | 0.72|
| I have assisted other customers when they needed my help | 0.82    |     |
| I have helped other customers when they seemed to have problems | 0.90    |     |
| I have taught other customers to use the service correctly | 0.85    |     |
| I have given advice to other customers | 0.82    |     |

Table 2

| Construct                        | PS  | PV | SE | RE | RC | CB | PB |
|----------------------------------|-----|----|----|----|----|----|----|
| Perceived severity (PS)          | 0.85|    |    |    |    |    |    |
| Perceived vulnerability (PV)     | 0.70| 0.80|    |    |    |    |    |
| Self-efficacy (SE)               | 0.04| 0.06| 0.78|    |    |    |    |
| Response-efficacy (RE)           | 0.17| 0.21| 0.23| 0.79|    |    |    |
| Response cost (RC)               | 0.10| 0.07| 0.21| -0.22| 0.88|    |    |
| Participation behavior (PB)      | 0.22| 0.22| 0.34| -0.04| 0.39|    |    |
| Citizenship behavior (CB)        | -0.04| 0.01| 0.23| 0.02| 0.12| 0.85| 0.80|

Note: Values on the diagonal are square roots of theAVE values, while the off-diagonals are correlations.
while the effects of perceived vulnerability and response cost on citizenship behavior were not significantly mediated by consumers’ participation behavior ($\beta = 0.03, p > 0.05; \beta = -0.01, p > 0.05$, respectively).

### 3.3. The moderating effect of generation

The current study proposed the existence of a moderating effect of generation in H5a-H6e. Therefore, the sample was divided into three generations; a total of 68 participants were identified as Generation X, 104 participants were in Generation Y, and 138 participants were in Generation Z. Results from the multi-group analysis revealed that there were significant differences in the self-efficacy-participation relationship ($\beta = -0.55, p < 0.05$) and in the response cost-citizenship behavior relationship ($\beta = -0.55, p < 0.05$) between Generation X and Generation Z. These findings supported hypotheses H5c and H6e, indicating that the impacts of self-efficacy on participation behavior and those of response cost on citizenship behavior were significantly different across Generation X and Generation Z. Additionally, significant differences were found between Generation Y and Generation X ($\beta = -0.58, p < 0.05$) and between Generation Y and Generation Z ($\beta = 0.43, p < 0.01$) in the response-efficacy-participation behavior link, supporting H5d. All other paths (e.g., H5a, H5b, H5e, H6a-H6d) were found to show no significant moderating effect of generation. Table 4 shows the detailed results of the moderating effect analysis.

### 4. Discussion and implications

#### 4.1. Threats and coping appraisals of COVID-19 predicting Co-creation behaviors

Two cognitive processes of PMT, threat and coping appraisals, are taken to predict restaurant customers’ protective behavior in the COVID-19 pandemic. This study finds that restaurant customers’ perceptions of the severity of COVID-19 significantly influence their intention to engage in co-creation behaviors. Restaurant customers are aware of the seriousness of COVID-19 and its consequences for their lives. This perception of the pandemic’s severity leads them to engage in responsible behaviors and help others in protecting themselves against COVID-19. Interestingly, customers’ perceptions of COVID-19 vulnerability are found to not be a significant indicator of their co-creation behaviors. This may be attributed to the fact that the perception of COVID-19 vulnerability increases customers’ health concerns, and the restriction of social interactions and gatherings limits their ability to work with others.

Regarding the effects of coping appraisals concerning COVID-19 on...
co-creation behaviors, the study results support that self-efficacy and response efficacy are significant predictors of customers' co-creation behaviors, while response cost does not engender customers' co-creation behaviors. Customers' confidence in their ability to deal with COVID-19 (self-efficacy) encourages them to adopt participation and citizenship behaviors to control the pandemic collectively. This is consistent with the previous research finding that self-efficacy is a significant predictor of self-protective behavior in choosing restaurants (Choi et al., 2011). This study also finds that response efficacy is positively related to participating behavior but negatively related to citizenship behavior. The results may indicate that customers adopt the recommended behavior, such as face covering and social distancing, as they perceive the behavior to be effective in protecting them from the COVID-19 threat. However, this perceived effectiveness of the recommended behavior suggests limiting human contact, thus it may discourage people from directly offering help to the service provider and other customers. In line with Teasdale et al. (2012), high response cost may lead to less engagement in protective behavior. Thus, the insignificant effect of response cost on participation behavior and its low effect on citizenship behavior may be related to the fact that customers' perceived response cost to COVID-19 is high, discouraging them from engaging in co-creation behaviors.

4.2. Participation behavior’s mediating and predicting protection behavior

Restaurant customers' perceptions of the COVID-19 threat and their coping competencies influence their protective behavior adaptation process. The current study proposes that customer participation behavior promotes citizenship behavior under the COVID-19 threat, thus the participation behavior mediates the relationship between consumers' protection motivations and their citizenship behavior. The study also confirms the finding from Grosh (2005)'s study that customers' intention to engage in responsible and recommended behavior increases their willingness to engage in helping other customers. Additionally, the effects of perceived severity, self-efficacy, and response efficacy on citizenship behavior are significantly mediated by participation behavior. The results indicate that customers' assessment of threats and their coping competencies lead them to adopt responsible and recommended behaviors during the COVID-19 pandemic, further developing their willingness to engage in citizenship behavior.

4.3. Generational differences in coping with COVID-19

Generations are characterized as groups of individuals who experience common socio-historical phenomena and share similar values, beliefs, and behavioral intentions (Mannheim, 1952). The study results reveal that there are significant differences in the effect of self-efficacy on participation behavior between the members of Generations X and Z. Generation Z members show a stronger relationship than do those of Generation X. Members of Generation Z are considered to have lower COVID-19 risk than members of older generations (CDC, 2020), hence this may raise their self-efficacy in coping with COVID-19. On the other hand, Generation X members, often known as the “sandwich generation” that care for both their children and aging parents, may juggle their anxieties with stress from taking care of family members in the situation of COVID-19. Therefore, they may perceive the situation as more serious and complicated than do other generations, which lowers their self-efficacy to cope with COVID-19 (Cherry, 2020). The study also finds the strongest effect of response efficacy on participation behavior in the Generation Y cohort, as compared with Generation X and Z members. The finding is in line with Shulga et al. (2018) that Generation Y members engage more easily in co-creation behaviors than do those of other generations. This generational characteristic is related to the fact that Generation Y members enjoy frequent contact with peers and tend to prefer working in teams than working individually (Oblinger & Oblinger, 2005). Further, as the largest workforce of the U.S. (Lee et al., 2021), members of Generation Y may utilize the recommended behavior (e.g., mask wearing, social distancing) more than those of the other generations and find it effective. This in turn increases their willingness to engage in participation behavior to protect themselves and others from the health threat. In addition, the effect of response cost on citizenship behavior is found to be positive and significant for Generation Z, while the effect is not significant for the Generation X and Y cohorts. The high response cost of COVID-19 may discourage customers from participating in co-creation behaviors. However, the positive effect of response cost on citizenship behavior for Generation Z members may be attributed to the fact that they have lower risk than members of the other generations (CDC, 2020), thus they are more prone to help others and engage in citizenship behavior as the virus continues to threaten public health.

4.4. Theoretical implications

Drawing on the theoretical underpinning of PMT and the concept of co-creation behavior, this study contributes to advancing our knowledge regarding the ways consumers’ perceptions of threats, coping appraisals, and competencies influence consumers’ co-creation behaviors (i.e., participation and citizenship behaviors) across generations in the context of the global pandemic. As the pandemic needs to be controlled through collaborative efforts among individuals, this study incorporates the concept of co-creation into customers’ health protective behavior under the COVID-19 threat using the PMT model. This approach supports that PMT is a robust model for predicting restaurant customers’ co-creation behaviors during the global pandemic and provides a deeper understanding of the relationship between PMT and consumer behavior. Specifically, the study reveals that customers’ assessment of the threat and their ability to cope with COVID-19 determines their intention to collaborate with service providers and to participate in citizenship behaviors.
Another notable contribution of this study is that the examination of the relationship between consumers’ participation behavior and citizen behavior. The study finding indicates that participation behavior triggers customers’ citizenship behavior, supporting that service provider-customer interactions take preeminence over customer-customer interactions. Furthermore, the examination of generational differences in coping with COVID-19 sheds light on how generations respond to the COVID-19 pandemic differently as a consequence of their threat and coping appraisals. The current stream of research has rarely made reference to the generation theory in the context of the COVID-19 pandemic. Along with the concept of co-creation, the study provides an understanding of how generations differ in their values, beliefs, perceptions, and roles in society, thus enacting different co-creation behaviors under the pandemic situation.

4.5. Managerial implications

As the global COVID-19 pandemic has reshaped social and economic landscapes (Parker & Igielnik, 2020), changes and adjustments in the operation of restaurants are essential to protect employees, customers, and communities. In this regard, the findings of this study are meaningful to the restaurant industry for suggesting ways in which service providers can alleviate threats and create value for customers as they cope with COVID-19.

Based on the study findings, perceived severity, self-efficacy, and response efficacy are important aspects of restaurant customers’ participation and citizenship behaviors. Consumers’ perception of the pandemic’s severity influences them to adopt the behavior, and consumers with low self-efficacy and response-efficacy may prefer to buy food from drive-through restaurants or use delivery services instead of dining at restaurants. To incorporate these customers, restaurants not only implement responsive safety protocols but also improve their order fulfillment systems and digital interfaces with mobile orders and uncontacted food offerings. As part of their health protective behavior, customers will be more likely to visit restaurants that make efforts to lower the threat and to proactively engage in responsible behaviors by incorporating the restaurants’ protocols. Thus, restaurants should pursue strategies to actively communicate messages related to customers’ safety concerns and their preventive practices to gain the needed recognition and social agreement.

From a managerial perspective, it is important to understand the logic of what influences consumers’ behavior and their perceptions. Understanding each generation’s characteristics and their responsive behavior during the pandemic would help restaurant operators to strategically target segments of customers who would participate in collaborative actions and build long-term relationships to respond to the situation (Shulga et al., 2018). Notably, this study examines distinct characteristics of each generation and reveals that members of Generation Z are more actively engaged in co-creation behaviors than members of Generations X and Y. Likewise, restaurants need to customize services at every service encounter to accommodate members of all generations and actively collaborate with generations that have high interest in enacting co-creation behavior. As the generations examined in the study showed different preference regarding co-creation behaviors, restaurants need to be attentive to understanding the differences and providing dynamic approaches to different generation cohorts. This will be the key to success in making consumers return to the operations and build long-term relationships.

4.6. Limitations and future studies

The current study has some limitations that suggest future research directions. First, this study collected data in the summer of 2020, so the study respondents’ perceptions and experiences with the COVID-19 pandemic may have been relatively limited. Future research should replicate the study at different times or perform an experimental study to measure consumer behavior under different COVID-19 conditions and restaurants’ preventive practices. Second, this study examined customer protection behavior in response to COVID-19 in the restaurant industry; thus, the study findings may not apply to other industries. Future research may extend this research framework to examine consumer behavior in other industries. Third, this study examined generational differences in response to COVID-19 among members of Generations X, Y, and Z. Baby Boomer were excluded from the study as they were considered to be at high risk from COVID-19. Therefore, future study can examine members of this generation in relation to their perceptions and behavior amid COVID-19 and investigate ways in which they are different from those of other generations. Lastly, this study excluded the participants who had no dine-in experience during the COVID-19 pandemic. Considering that some individuals may choose not to dine in restaurants due to their high sensitivity and vulnerability to the COVID-19 threat, their perceptions and protection behavior need to be further examined to increase our understanding and knowledge about the subject.

5. Conclusion

The COVID-19 pandemic has had a variety of social and economic impacts across service industries. The restaurant industry has been one of the industries most negatively impacted by the COVID-19 pandemic, and it is expected to greatly influence customers’ attitudes and behavior. As the spread of the virus is dependent in part on human behavior, collaboration for risk management and prevention between service providers and consumers is necessary. Therefore, this study uses protection motivation theory to examine how consumers’ coping and threat appraisals of COVID-19 influence their co-creation behavior. The study results provide empirical support for the conceptual model and indicate that consumers’ perceived evaluation of both coping and threat appraisals greatly influence their participation and citizenship behavior under the COVID-19 threat. The study further reveals generational differences in coping with the pandemic, thus the study provides important theoretical and practical implications for the field.

References

Accenture. (2020). “How COVID-19 will permanently change consumer behavior”. Accent. Available at: https://www.accenture.com/ja-ja/insight/pdf/zoom-40.

Adger, W. N. (2009). Social capital, collective action, and adaptation to climate change. Economic Geography, 79(4), 387–404.

Ahn, J., Back, K. J., Bartle, P., & Lee, C. K. (2020). Co-creation and integrated resort experience in Croatia: The application of service-dominant logic. Journal of Destination Marketing & Management, 17, 100443.

Balaji, M. S., & Roy, S. K. (2017). Value co-creation with Internet of things technology in the retail industry. Journal of Marketing Management, 33(21-2), 7–31.

Betencourt, L. A. (1997). Customer voluntary performance: Customers as partners in service delivery. Journal of Retailing, 73(3), 498–507. doi:https://doi.org/10.1016/S0022-4359(97)90024-5.

Brug, J., Ar, A. R., & Richardus, J. H. (2009). Risk perceptions and behaviour: Towards pandemic control of emerging infectious diseases: International research on risk perception in the control of emerging infectious diseases. International Journal of Behavioral Medicine, 16(1), 3-6.

Burns, W. J., Peters, E., & Stojic, P. (2012). Risk perception and the economic crisis: A longitudinal study of the trajectory of perceived risk: Risk perception and the economic crisis. Risk Analysis, 32(4), 659-677.

Burns, A. J., Posey, C., Roberts, T. L., & Lowry, P. (2017). ‘Examining the relationship of organizational insiders’ psychological capital with information security threat and coping appraisals’. Computers in Human Behavior, 68, 190-209.

Carpenter, J., Moore, M., Doherty, A. M., & Alexander, N. (2012). Acculturation to the global consumer culture: A generational cohort comparison. Journal of Strategic Marketing, 20(5), 411–423.

Centers for Disease Control and Prevention (Cdc). (2020). “Older adults”. Available at: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html.

Chatthoth, P. K., Ungson, G. R., Harrington, R. J., & Chan, E. S. W. (2016). Co-creation and higher order customer engagement in hospitality and tourism services: A critical review. International Journal of Contemporary Hospitality Management, 28(2), 222-245.
Cherry, K. (2020). “How different generations are responding to COVID-19”, Verywellmind, April 21. available at: https://www.verywellmind.com/how-different-generations-are-responding-to-covid-19-4802517.

Chin, W. W. (1998). The partial Least squares approach for structural equation modeling.

In G. A. Marcoulides (Ed.), Methodology for business and management. Modern methods for business research. New Jersey: Lawrence Erlbaum Associates Publishers.

Chin, W. W., Peterson, R. A., & Brown, P. S. (2008). Structural equation modeling in marketing: Some practical reminders. Journal of Marketing Theory and Practice, 16(4), 287–298.

Choi, J., Nelson, D. C., & Almanza, B. (2011). The impact of inspection reports on consumer behavior: A pilot study. Food Control, 22(6), 862–868.

Cho, H., & Lee, J. S. (2015). The influence of self-efficacy, subjective norms, and risk perception on behavioral intentions related to the H1N1 flu pandemic: A comparison between Korea and the US; Cross-national comparison of behavioral intention. Asian Journal of Social Psychology, 18(4), 311–324.

Ersey, I. (2017). “The role of customers’ involvement in value co-creation behaviour is value co-creation the source of competitive advantage?”. Journal of Competitive, 9(3), 53-66.

Ferrer, R. A., Klein, W. M. P., Avishai, A., Jones, K., Villegas, M., & Sheeran, P. (2018). When does risk perception predict protection motivation for health threats? A person-by-situation analysis. PloS One, 13(3), Article e0191994. https://doi.org/10.1371 journal.pone.0191994.

Fischer, P., Greitemeyer, T., Pollozek, F., & Frey, D. (2006). The unresponsive bystander: Are bystanders more responsive in dangerous emergencies? European Journal of Social Psychology, 36(2), 267–278.

Grissemann, U. S., & Stockburger-Sauer, N. E. (2012). Customer co-creation of travel services: The role of company support and customer satisfaction with the co-creation performance. Tourism Management, 33(6), 1483–1492.

Groth, M. (2005). Customers as good soldiers: Examining citizenship behaviors in service encounters. Journal of Service Management, 21(1), 7–27.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). A primer on partial Least squares structural equation modelling (PLS-SEM). Los Angeles: Sage Publications.

Im, J., & Qu, H. (2017). Drivers and resources of customer co-creation: A scenario-based case in the restaurant industry. International Journal of Hospitality Management, 64, 31–40.

Lee, Y. H., Hisao, C., & Chen, Y. C. (2017). Linking positive psychological capital with customer value co-creation. International Journal of Contemporary Hospitality Management, 29(4), 1235–1255.

Kasabov, E, & Hain, T (2014). Cross-generational perceptions and reactions during service recovery. The Service Industries Journal, 34(1), 71–87.

Lee, H., Min, J., & Yuan, J. (2021). The influence of eWOM on intentions for booking luxury hotels by Generation Y. International Journal of Contemporary Hospitality Management, 29(3), 278–298.

Mannheim, K. (1952). The problem of generations. In P. Kecskemeti (Ed.), Sociology of knowledge: Collected works. New York, NY: Routledge.

C. K., & R. F. (2008). Service-dominant logic: Continuing the evolution. Journal of the Academy of Marketing Science, 36(4), 370–389.

Milne, S., Sheeran, P., & Orbell, S. (2000). Prediction and intervention in health-related behavior: A meta-analytic review of protection motivation theory. Journal of Applied Social Psychology, 30(1), 106–143.

Nabi, R. L., & Myrick, J. G. (2019). Uplifting fear appeals: Considering the role of hope in behavioral influences on employee performance, satisfaction, commitment, and turnover intention. Journal of Business Research, 64(1), 87–95.

Zeithaml, V. A., Bittner, M. J., & Grewal, D. D. (2006). Services marketing: Integrating customer focus across the firm. Boston, MA: McGraw-Hill/Irwin.

Grossman, M., & Mishra, G. (2007). When customers receive support from other customers: Exploring the influence of intercustomer social support on customer voluntary performance. Journal of Service Research, 9(3), 257–270.

Rosenbaum, M. S., & Matisik, C. A. (2007). When customers receive support from other customers: Exploring the influence of intercustomer social support on customer voluntary performance. Journal of Service Research, 9(3), 257–270.

Roy, S. K., Balaji, M. S., Soutr Mikhail, G., & Jiang, X. (2020). The antecedents and consequences of value co-creation behaviors in a hotel setting: A two-country study. Cornell Hospitality Quarterly, 61(3), 351–368.

Schewe, C. D., & Noble, S. M. (2000). Market segmentation by cohorts: The value and validity of cohorts in America and abroad. Journal of Marketing Management, 16 (1–3), 129–142.

Sladka, J. V., Busser, J. A., & Kim, H. (2018). Generational profiles in value co-creation interactions. Journal of Hospitality & Tourism Management, 27(2), 196–217.

Soares, R. R., Zhang, T. Z., Froença, J. F., & Kadampally, J. (2017). Why are Generation Y consumers the most likely to complain and repurchase? Journal of Service Management, 28(3), 520–540.

Sturges, J. W., & Rogers, R. W. (1996). Preventive health psychology from a developmental perspective: An extension of protection motivation theory. Health Psychology, 15(3), 158–166.

Swanson, S. R., & Hsu, M. K. (2009). “Critical incidents in tourism: Failure, recovery, customer switching, and word-of-mouth behaviors”. Journal of Travel & Tourism Marketing, 26(2), 180–194.

Teadale, E., Yardley, L., Schlote, W., & Michie, S. (2012). The importance of coping appraisal in behavioural responses to pandemic flu: Importance of coping appraisal. British Journal of Health Psychology, 17(1), 44–59.

Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. Journal of the Academy of Marketing Science, 36, 1–10. https://doi.org/10.1007/s11747-007-0069-6.

Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining knowledge contribution in electronic networks of practice. MIS Quarterly, 29(1), 1–23.

Yi, Y., & Gong, T. (2013). Customer value co-creation behavior: Scale development and validation. Journal of Business Research, 66(9), 1279–1284.

Yi, Y., Natarajan, R., & Gong, T. (2011). Customer participation and citizenship behavioral influences on employee performance, satisfaction, commitment, and turnover intention. Journal of Business Research, 64(1), 87–95.

Zettl, A., Binn, M. J., & Gremm, D. D. (2006). Services marketing: Integrating customer focus across the firm. Boston, MA: McGraw-Hill/Irwin.

Zhao, G., Cavuglo, B., & Zhao, V. (2016). “A protection motivation explanation of base-of-pyramid consumers’ environmental sustainability”. Journal of Environmental Psychology, 45, 116–126.