Effects of customers' perceived risks of sharing economy on self-protective behavior toward COVID-19

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Purpose
This study investigates how customers' perceived risks of sharing economy (SE) affect their self-protective behaviors when using SE, leading to their future behavioral intention. Additionally, this study looks into whether there are any differences between accommodation sharing and ride sharing customers in the aforementioned relationships.

Design/methodology/approach
An online survey targeting two groups of SE customers (i.e., accommodation sharing and ride sharing) was employed. Using PLS-SEM, the mechanism of how SE customers' perceived risks of SE affect their self-protective behaviors, which in turn influence their future behavior intention. A multi-group analysis was performed to assess the difference between the two groups of SE customers. Lastly, multivariate analysis of variance (MANOVA) was conducted to see the potential differences between the five classifications of self-protective behaviors in their perceived risks.

Findings
SE customers' psychological risks positively affected their hygiene protective behaviors and social protective behaviors, influencing their behavior intention and relative intention (compared to traditional services). Social risk had a negative impact on SE customers' hygiene protective behaviors. There was a significant difference between accommodation sharing and ride sharing customers in their psychological mechanism of how perceived risks influence their self-protective behaviors.

Practical implications
The findings of this study help SE platforms and service providers better understand their customers' perceived risks of their services and suggest them to promote their customers' self-protective behaviors so that perceived risks can be mitigated, thereby generating strong behavior intentions. As the results indicated that there is a significant difference between the two major forms of SE (i.e., accommodation sharing, ride sharing) in their customers' perceived risks and self-protective behavior, SE platforms can further refine their operational and marketing efforts based on the findings.

Originality
This study offers a comprehensive understanding of SE customers' self-protective behaviors by examining the effects of SE customers' different perceived risks on their self-protective behaviors during the unprecedented pandemic. Furthermore, the comparison of the two most popular forms of SE (i.e., accommodation sharing and ride sharing) provides new perspectives to understand customers' behavior in the SE context.

1. Introduction

Sharing economy (SE) has been playing a key sector of the hospitality industry, competing or collaborating with conventional accommodations and transportations (Kuhzady *et al*., 2021). Different from traditional hospitality services, SE has three distinctive business entities (i.e., SE platform, service provider, and customer) that jointly create a more local and

authentic hospitality experience (Mody *et al.,* 2021). SE services are not solely provided by SE providers but created through different stakeholders' active participation, such as service providers, customers, and platforms. For example, accommodation sharing services are created by the interactions among platforms (e.g., Airbnb), hosts, and customers. This distinctive nature of SE business allows SE stakeholders to co-create the value and collaborate mutual interests for their successful business.

Accordingly, both SE service providers and customers have been highly relying on SE platforms (i.e., Airbnb or Uber) as a communication hub for their business transactions. Additionally, SE platforms are becoming more responsible for any business incidents and any potential risks to build mutual credibility over time between service providers and customers. In spite of SE platforms' efforts to create a risk-free environment for all stakeholders, there have unpredictable incidents that induce SE customers to develop perceived risks of SE. For example, various unlawful incidents in SE have been reported recently, including violence (Ert *et al*., 2016) and Airbnb host's sexual assault (e.g., Lieber, 2015), which affects customers' concerns about using SE and their perceived risks of SE. Despite the potential risks of SE, many customers in the hospitality industry have turned their attention to SE to experience authentic and local cultures at a lower price (Guttentag *et al*., 2018; Mahadevan, 2018). Particularly, with customers' demand for services with higher value and economic benefits, SE was rapidly growing and expected to continuously expand their business (Kuhzady *et al*., 2021).

However, SE's flourishing businesses have been standstill due to the unprecedented global pandemic. The COVID-19 pandemic has completely changed the promising future of SE that the industry predicted before COVID-19. According to the Statista report (Lock, 2020) about the impact of COVID-19 on Airbnb, the bookings on Airbnb dropped by 95% in the first quarter of 2020. Furthermore, the operating income losses were greater than US$3.5 billion (Lock, 2021). As the U.S. government has lifted travel restrictions and business lockdowns, and people have been more vaccinated as time goes by, people have been looking for the signs for a safe return to travel. With the increasing feasibility of tourism, the SE stakeholders have actively developed strategies to cope with the challenges resulted from COVID-19 and other variants (e.g., Delta, Omicron), thereby sustaining their businesses (Hossain, 2021). SE has developed response strategies for each target: customer, society, and organization (Mont *et al*., 2021). In order to ensure service providers' safety, Uber has sponsored their drivers with personal protective equipment (PPE) (e.g., disinfectant). For customers, SE platforms have increased their hygiene standards and supported physical/social distancing (Mont *et al*., 2021). Uber, for example, introduced their door-to-door safety standards to protect the health and safety of all stakeholders, whereas Airbnb provided cleaning, health, and safety guidelines.

Despite the vast efforts of SE platforms and service providers to sustain their business, it is uncertain whether customers are willing to use SE continuously because of their increased perceived risks of SE caused by COVID-19 and other variants. As found in previous studies, before the COVID-19 pandemic, customers have already developed their own perceived risks of SE, including accommodation sharing (Yi *et al*., 2020; Yuan *et al*., 2021) and ride sharing (Wang *et al*., 2019), because of SE's distinctive characteristics. Prior to the pandemic, customers' perceived risks had been mostly toward physical risks since they had to interact with strangers, such as Airbnb hosts or other guests (Ert *et al*., 2016). However, the researchers believe that during the pandemic, these concerns or risks could be doubled or changed, affecting their self-protective behavior toward COVID-19 and other variants, as customers have been more concerned about their health and safety. Particularly, customers' preference for SE would be decreased since SE services are less likely to have safety and hygiene standards, compared to traditional hospitality services (Farmaki *et al*.,

2020). On the other hand, according to protection motivation theory (Wang *et al*., 2019), SE customers' behaviors might be changed based on their perceived risk and their coping behaviors, such as self-protective behaviors. For example, SE customers' behavior intentions might not be decreased if they can mitigate the risks through their adaptive coping behaviors (Chen and Lu, 2021). This is particularly possible in the SE context, since SE customers are well aware of the factors that increase the transmission of COVID-19 and other variants and their adaptive coping behaviors (e.g., self-protection), which can generate positive behavior intentions to SE (Wang *et al*., 2019).

Although there is a potential to generate customers' demand for SE through their adaptive coping behaviors, studies (e.g., Yi *et al*., 2020; Yu *et al*., 2021) investigated the negative impacts of perceived risks on customers' behavioral intention. Up to date, only few studies (e.g., Fan *et al*., 2022) examined how SE customers' behaviors can be changed by offsetting their perceived risks through self-protective behaviors. Thus, it is pivotal for SE stakeholders to understand how SE customers' perceived risks of SE affect their self-protective behaviors when patronizing SE services during the pandemic. Therefore, this study attempts (1) to identify customers' perceived risks of SE during the COVID-19 pandemic, (2) to examine how customers' perceived risks affect their self-protective behaviors toward COVID-19 and other variants and their future behavior intentions, and (3) to explore potential differences between the different types of SE businesses (i.e., accommodation sharing and ride sharing). By achieving the aforementioned research objectives, this study will offer a comprehensive understanding of customers' perceived risks in the context of SE, describing the mechanism of how customers' self-protective behaviors are affected by their perceived risks of SE, which in turn increase their behavior intentions to use SE. Furthermore, the findings of this study will shed light on SE platforms to sustain their business during the COVID-19 pandemic by encouraging customers' self-protective behaviors.

2. Theoretical Background
2.1. Sharing Economy (SE) and COVID-19

Sharing economy (SE), defined as a collaborative consumption of under-utilized resources through peer-to-peer commercial exchange (Altinay and Taheri, 2019), has shown dramatic growth over the past decade (Cheng, 2016), generating the hedonic and utilitarian values through guest-host interactions (Li *et al*., 2021). As SE platforms' revenues and booking projections indicated, SE had a promising future and has been recognized as key peer-to-peer businesses. However, the outbreak and spread of COVID-19 has swirled the entire global economy, hampering people's discretionary social and economic activities. Among many different types of businesses, the hospitality and tourism business is one of the hardest hits by COVID-19 due to the worldwide travel restrictions, business lockdowns, and mandated social distancing to reduce its transmission to others (Jones *et al*., 2021).

SE was not an exception from COVID-19's negative impacts (UNWTO, 2020). Rather, SE was hit even harsher because of the triadic nature of the platform in which customers need to interact with various entities. The severe impacts of COVID-19 on SE might be attributed to the unique characteristics of SE services, such as different actors participating in value co-creation process (Heinonen *et al.,* 2019). In order to sustain their businesses during the COVID-19 pandemic, many SE platforms have been equipped with a variety of safety practices to ensure their stakeholders' health and safety and to relieve customers' anxiety about using SE. For example, Airbnb and Uber introduced mandatory COVID-19 safety practices, such as face mask and social distancing. However, it is unknown

how risky customers perceive using SE during the pandemic. Furthermore, without customers' coping behavior, it is difficult to assure the safety of using SE. Accordingly, it is of utmost importance for SE platforms and service providers to figure out how to sustain their business in this challenging situation through customers' coping behaviors, such as self-protective behaviors.

2.2. Perceived Risk
2.2.1. Customers' perceived risks of SE prior to COVID-19.

Customers' perceived risks refer to their anticipation of a possible loss or negative result occurring from using a service (Mao and Lyu, 2017). As a substantial amount of research on perceived risk has demonstrated, perceived risk is a key concept in understanding customers' evaluation and decision-making (Laroche et al., 2004). According to the seminal work of Jacoby and Kaplan (1972), there are multiple dimensions in a customer's perceived risk and the weight of each dimension varies (Laroche et al., 2004). Much research found that intangibility causes perceived risk (de Ruyter et al., 2001), which is believed to be a key characteristic of the hospitality industry.

Due to the distinctive characteristics of the hospitality industry (e.g., intangibility), customers typically perceive risks when using hospitality services, such as hotels (Sun, 2014). Customers' perceived risks are even more noticeable in the SE context due to insufficient and unavailable information about SE and other potential risks (Mao and Lyu, 2017), such as less regulated policies and lack of professional service training for service providers (Lee, 2020; Yang et al., 2017). Thus, there has been much research conducted to examine customers' perceived risks of SE even before the COVID-19 pandemic (e.g., Liang et al., 2018). Previous literature (e.g., Yi et al., 2020; Yuan et al., 2021) identified the dimensions of perceived risks in the SE context, including psychological, physical, social, privacy, financial, time, convenience, and performance risks. Although previous literature suggested these numerous dimensions of perceived risks, this study focused on four risks, including psychological, physical, social, and financial risks based on the significant findings of previous studies that examined perceived risks and the pandemic-specific risks in the SE context (e.g., Lee and Deale, 2021; Şen Küpeli and Özer, 2020; Yang et al., 2017; Yuan et al., 2021)

Customers may feel uneasy (i.e., mental stress, anxiety) when they use SE (Jacoby and Kaplan, 1972) for various reasons, thereby generating psychological risks. The reasons may include customers' uncomfortable feelings when they encounter strangers (e.g., host/driver, other guests), their insufficient information about SE services and facilities (Liang et al., 2018), and their unfamiliarity with SE's performance/quality (Lee, 2020). Furthermore, compared to traditional hospitality service providers, SE service providers tend to receive less formal service training and have less standardized service regulations for their operations (Yang et al., 2017). Due to the uncertainty and/or safety issues resulted from interacting with strangers who are not thoroughly supervised (Peltz, 2015), SE customers are often concerned about their physical safety and security, which in turn develop physical risks of SE (Yang et al., 2017). Furthermore, there have been issues regarding customers' safety, such as assaults and violence (e.g., Bever, 2018).

One of the perceived risks in the SE context is social risk (Khoa et al., 2020). Social risk indicates SE customers' expectation of their loss in their social image or feelings of embarrassment related to the use of SE (Lee and Deale, 2021). Customers tend to believe SE is less expensive than traditional hospitality services (Guttentag et al., 2018). For customers who would like to maintain their desired images, such as high social status and affluent individuals, this might be considered as social risk (Davlembayeva et al., 2020). According to Olson (2013), customers are worried about not only safety issues but the quality of SE

services, compared to traditional hospitality services. While SE customers are already concerned about the quality of SE services, SE service providers can set additional fees (e.g., resort fee, cleaning fee, management fee) and their individual amounts vary by property and host. Furthermore, different from traditional services, there is no guaranteed rate. Hence, SE customers can easily perceive financial risks when using SE (Yuan *et al*., 2021).

2.2.2. Customers' perceived risks of SE during COVID-19.

Customers' perceived risks of SE would have increased during the COVID-19 pandemic. In particular, those who already had a certain level of perceived risks might be even more concerned about the risks (Braje *et al*., 2021; Lee and Deale, 2021), because some policy makers discussed strategies about living with COVID-19, which will ease the restrictions to prevent COVID-19 (Emanuel *et al*., 2022). Although SE platforms implemented various safety practices to prevent the virus from spreading, some customers believe that it is impossible for them to ensure their safety when using SE, because of the difficulty in keeping social distance or personal hygiene (Alharthi *et al*., 2021). Furthermore, one of the key factors attracting customers to SE, personal interactions with locals (Guttentag *et al*., 2018), also became a potential peril during the pandemic since the virus transmits when people are in close proximity (Gerwe, 2020). It is particularly true for ride sharing such as Uber and Lyft, because service providers and customers have to stay in a closed space (i.e., vehicle) with limited ventilation (Hossain, 2021). Due to the potential danger in SE and the increasing importance of personal hygiene to prevent the spread of COVID-19, customers started feeling uncomfortable using SE (Gerwe, 2020), showing growing psychological and physical risks.

While the COVID-19 pandemic would have increased customers' perceived psychological and physical risks due to the direct contact with others and less standardized service practices, social risk and financial risk might have also been influenced. Since it is well-known that social distancing is critical to prevent the transmission of COVID-19, people probably have developed negative attitudes toward customers who use SE during the pandemic since they are exposed to many people, increasing potential contacts to COVID-19. Furthermore, there was a rise in COVID-19 cases because of people's irresponsible behavior (Economic Times, 2020; Halloran, 2020). Accordingly, there has been a narrative blaming people going out public for the spread of COVID-19 (Halloran, 2020). Thus, using SE during the pandemic would be highly associated with social risk (Lee and Deale, 2021). Customers might also develop financial risk of SE, compared to traditional hospitality services since traditional hospitality services, such as hotels, have a more consistent and flexible cancellation policy (French, 2021). Furthermore, previous examples of accommodation sharing refusing to pay refunds resulted from COVID-19 (e.g., Downs, 2021) possibly escalated their perceived risks during the pandemic.

2.3. Self-protective behavior

According to the protection motivation theory, when a person faces a threat, he/she is likely to appraise the threat and coping behaviors, thereby engaged in coping behaviors (Floyd *et al*., 2000; Wang *et al*., 2019). As the protection motivation theory explains the mechanism of how customers are engaged in protective behaviors, it has abundantly applied in information system research in relation to customers' perceived security and their protective behavior (e.g., Vance *et al*., 2012) or health research (e.g., Rahaei *et al*., 2015). On the other hand, the protection motivation theory was mostly used for sustainability research in the hospitality and tourism context (Hong *et al*., 2014). However, with the COVID-19 pandemic, the protection motivation theory has been frequently applied in hospitality and

tourism research to understand how customers behave in the unprecedented pandemic (Fan *et al*., 2022; Rather, 2021).

When there is a global pandemic (e.g., H1N1 in 2009), customers are often involved in such behaviors as washing hands in order to protect themselves against the disease (Cowling *et al*., 2010). Self-protective behavior is defined as a corresponding function of customers' perceived risks (Taylor, 1974). More specifically, self-protective behavior is a customer's averting behavior to reduce the probability of an adverse outcome or an action taken to reduce personal or group vulnerability to a risk (Ehrlich and Becker, 1972). In the context of respiratory disease pandemic (e.g., COVID-19), customers' self-protective behavior can be further divided into hygiene protective behavior and social protective behavior (Bish and Michie, 2010). Hygiene behaviors (i.e., preventive behaviors) include washing hands and wearing face masks, while social behaviors (i.e., avoidance behaviors) includes refraining from going to public places to reduce potential contacts (Bish and Michie, 2010).

Customers' self-protective behavior is significantly associated with perceived risk (Abdelrahman, 2020). For example, Lepp and Aro (2009) found that people tend to be involved in hygiene protective behaviors, such as washing hands during a pandemic. In the SE context, previous research (e.g., Yang *et al*., 2020) suggested that each individual's self-protective behavior would be influenced by his/her perceived risks of SE during the pandemic. Many studies have already confirmed that customers' self-protective behavior arises from their psychological risks, such as anxiety (Nakayachi *et al*., 2020). On the other hand, previous literature showed that customers' protective behavior is also related to their prosocial (e.g., Dinić and Bodroža, 2021; Pfattheicher *et al*., 2020). Nakayachi *et al.* (2020), for example, found that customers' self-protective behavior (e.g., wearing face masks) was highly influenced by their social norms. People would form more negative attitudes to a customer who caught COVID-19 due to his/her involvement in SE services than a customer who got infected from essential life activities (Li *et al*., 2020). Thus, in order to avoid any blames, SE customers would be engaged more in self-protective behaviors when they felt social risks.

Furthermore, in the COVID-19 pandemic, self-protective behaviors would be even more important for SE customers when there is an unneglectable number of people who are not engaged in self-protective behaviors, such as resistance to mask wearing. In other words, self-protective behaviors would play a critical role when they are not compulsory. For example, more than 40 states in the U.S. did not have mask mandates, including Arizona, Florida, Michigan, North Carolina, Texas, and so on (Hubbard, 2022). Accordingly, many reports have already found that the substantial number of people are not engaged in self-protective behaviors because it is not an obligation, threatening others' safety and health (Key, 2021). Thus, the following hypotheses were developed:

H1: SE customers' (a) psychological, (b) physical, (c), social, and (d) financial risks affect their hygiene protective behavior.
H2: SE customers' (a) psychological, (b) physical, (c), social, and (d) financial risks affect their social protective behavior.

2.4. SE Customers' Behavior Intention

When customers are actively engaged in self-protective behavior (i.e., hygiene protective behavior and social protective behavior), they would be willing to use SE as their perceived risks would be diminished by their self-protective behaviors. As an adaptive coping mechanism, SE customers would be engaged in self-protective behavior to reduce their perceived risks (Zheng *et al*., 2021). Customers' self-protective behavior would mitigate their

perceived risks of SE, thereby increasing their willingness to use SE during the pandemic. Employing the protection motivation theory (Rogers, 1975), Zheng *et al*. (2021) found that travelers' self-protection motivation increased their cautious travel intention. Hence, when SE customers are engaged in self-protective behavior (i.e., hygiene protective behavior and social protective behavior), they are more likely to use SE. Therefore, the following hypothesis was developed:

H3: Customers' (a) hygiene protective behavior and (b) social protective behavior affect their behavior intention to use SE.

2.5. Customers' Behavior Intention Compared to Traditional Hospitality Services

Prior to the COVID-19 pandemic, customers might have felt riskier to stay in sharing accommodation because of the lack of information about service providers (Mohamed, 2020).

However, during the pandemic, customers might prefer SE to traditional hospitality services for several reasons. Customers prefer to have SE's offerings such components as privacy, social distance, and availability of a longer time period (Hines, 2021). Since sharing accommodations have a wide range of options, including the entire property, the possibility to encounter other people is less than traditional lodging services (e.g., hotels) because they do not share such facilities as elevators or hallways (Mohamed, 2020). Hence, if self-protective behaviors are well performed, customers are less likely to contract the virus, which possibly increases their willingness to stay at an accommodation sharing rather than a hotel.

Ride sharing might also be a better option for customers because they can check their previous rides and find information about their drivers through the platforms. Furthermore, it is much easier for customers to track whether they were exposed to COVID-19, as Uber provides COVID-19 contact tracing data at no cost for public health, and those with confirmed infection are automatically suspended from the services for a certain period to prevent the spread (Bellon, 2020). Accordingly, using ride sharing with self-protective behaviors would diminish their perceived risks compared to other transportations (e.g., taxi). Accordingly, the following hypothesis was derived:

H4: Customers' (a) hygiene protective behavior and (b) social protective behavior affect their relative intention to use SE is affected.

2.6. Difference between Accommodation Sharing and Ride Sharing

Although accommodation sharing and ride sharing are common SE, there might be divergence in SE customers' perceived risks, self-protective behaviors, and their intentions, resulted from their distinctive characteristics. Particularly, the number of guests served per day and the vacancy period between bookings are entirely different. For example, Airbnb encouraged hosts to have a 24-hour vacancy period between two bookings, and private/entire properties are available on sharing accommodations (Fitch, 2020). On the other hand, it is uncertain how many customers would have used or will use ride sharing from the same driver, and it is also challenging to ensure the vacancy period between bookings. Thus, a significant difference between accommodation sharing and ride sharing in customers' perceived risks, self-protective behaviors, and intentions, although all SE platforms and service providers take health and safety practices. Hence, the following hypothesis was developed:

H5: There is a significant difference between accommodation sharing and ride sharing in the proposed relationships.

Based on the discussion above, the following research framework to examine how SE customers' psychological, physical, social, and financial risks affect their hygiene and social protective behaviors, thereby influencing future behavioral intentions and relative intentions.

[Figure 1]

3. Methodology

3.1. Data Collection and Instrument

This study employed an online self-administered survey. The survey was developed on Qualtrics and the respondents were recruited through Amazon Mechanical Turk (MTurk) due to the benefits of MTurk data collection (Buhrmester *et al*., 2011). Since this study focused on SE customers' voluntary engagement in the self-protective behaviors, the countries where self-protective behaviors were mandatory were not included in this study such as France and South Korea. Thus, the study's respondents were limited to U.S. residents, because most states in the U.S. did not have a mask requirement nor did they have a federal mask mandate (Hubbard, 2022). Two pilot tests were performed with MTurk panels (N_{pilot1} = 202, N_{pilot2} = 245) to ensure the reliability, readability and validity of the measurement items. The respondents who participated in the pilot tests were not allowed to participate in the main survey. The main data collection was performed during the first week of November 2021.

The survey consisted of five sections. To ensure the respondents' understanding of the study context, a brief description of the study, a consent form, and quality commitment items were presented in the first section. The second section included an explanation of sharing economy, examples of sharing economy in the hospitality and tourism industry, and a series of screening questions. For example, whether the respondents had used any SE services prior to the pandemic was asked to ensure the representativeness of the sample. Also, whether the respondents had used any SE services was asked as a control variable. An item asking the respondents of most frequently used sharing economy platform was included at the end of the second section to use the platform for the subsequent sections and to ensure the survey quota (accommodation sharing, ride sharing). The third section included items to classify the respondents into five types of self-protective behavior. The measurement items for the focal constructs were included in the fourth section. The fifth section contained items asking the respondents' perceptions of COVID-19 and socio-demographic information. Several attention check items were randomly placed in the survey to ensure the quality of the data. Responses that failed the attention check items were excluded for further analyses.

All constructs were measured with multiple items on a five-point Likert scale, except the items for self-protective behavior classification. Adopting the measurement items and scale used in the study of Chuo (2014) (see Table 1), this study used four items to classify respondents' typology of their self-protective behaviors in response to COVID-19. The first two items were measured with a dichotomous (yes vs. no) type of scale and the other two items were measured with a four-point Likert scale (i.e., increased, did not change, decreased, or ceased completely). Psychological risk was measured with four items adopted from Şen Küpeli and Özer (2020). Four items for physical risk and five items for social risk were adopted from Lee and Deale (2021) and Şen Küpeli and Özer (2020). Three items from Yuan *et al*. (2021) were used to measure financial risk. Items to measure self-protective behaviors (i.e., hygiene behavior, social behavior) were adopted from Li *et al*. (2020). Behavior intention and relative intention were measured with three items, respectively, from Teng *et al*. (2018).

3.2. Data Analysis

A descriptive analysis was performed to summarize the respondents' characteristics, such as socio-demographic profile and constructs' descriptive statistics. Following Chuo's (2014) typology determination procedure, the five typologies of respondents' self-protective behavior were classified based on their responses to the four questions mentioned above (see Table 1). Partial least squares structural equation modeling (PLS-SEM) technique was used for the main data analysis because of the prediction-oriented nature of this study (Hair *et al*. 2011). By employing the two-step approach (Anderson and Gerbing, 1988), the data were analyzed with SmartPLS 3.3.3. First, the measurement model was tested to assess the adequacy of the measurement by assessing the statistical significance and magnitude of factor loadings. Applying Harman's single factor test, common method bias was assessed. In order to test the structural model, a component-based path estimation with bootstrapping technique (N = 5000) was performed. Then, a multi-group analysis (MGA) was conducted to see the difference between accommodation sharing and ride sharing. Lastly, multivariate analysis of variance (MANOVA) and post-hoc analyses were conducted to detect any potential differences between the five classifications of self-protective behavior in their perceived risk.

[Table 1]

4. Results

4.1. Respondents' Profile

A total of 405 complete questionnaires were collected. Table 2 describes the respondents' socio-demographic profiles. About 53% of the respondents were male. Approximately 71% of the respondents were between 25 and 44 years old. More than four-fifths (82%) of the respondents were Caucasian. More than half of the respondents (58%) held Bachelor's degree, and 26% had postgraduate degree. A quarter (25%) of the respondents had household income between $50,001 to $70,000, followed by those with household income between $70,001 to $90,000 (19%). More than four-fifths (85%) of the respondents were employed full-time. Approximately 72% of the respondents were fully vaccinated, whereas 11% of the respondents were not planning to be vaccinated. About 41% of the respondents chose Airbnb as their most frequently used SE, whereas 42% selected Uber. Based on the protective behavior typology classification, approximately 7% of the respondents fell in Type 1 (i.e., not at all self-protective group), while about 5% of the respondents were Type 5 (i.e., extremely self-protective group). About 46% of the respondents mentioned that they were likely to contract COVID-19. On the other hand, 45% of the respondents thought they were not likely to die as a result of getting COVID-19.

[Table 2]

4.2. Measurement Model Test

Table 3 illustrates the measurement model test and Table 4 describes the evidence of discriminant validity. All standardized factor loadings were greater than or equal to .74, indicating the error variance was smaller than the measured variance (Gefen *et al*., 2000). Furthermore, all items were loaded to the designated construct at the significant level. The average variance explained for the constructs were greater than or equal to .59, showing that the shared variance was greater than the error variance (Fornell and Larker, 1981). Accordingly, convergent validity was established. The bivariate correlation between any two constructs was less than the square root of AVE, suggesting there was sufficient discriminant

validity. The heterotrait-monotrait ratio of correlations (HTMT) was less than or equal to .78, further demonstrating the existence of discriminant validity (Henseler *et al.*, 2015). The results also showed that there was sufficient internal consistency, as Cronbach's alpha was greater than or equal to .75, and composite reliability was also greater than or equal to .85. When all items were loaded to a single factor without any rotation, the variance explained by the factor was .30, indicating the absence of common method bias (Eichhorn, 2014).

[Tables 3 & 4]

4.3. Structural Model Test

Sharing economy customers' hygiene protective behavior was positively influenced by psychological risk with a small effect size (β = .27, t = 3.85, p < .001, f^2 = .04) (Hair *et al.*, 2021). On the other hand, social risk negatively influenced hygiene protective behavior (β = -.33, t = -4.79, p < .001, f^2 = .06). Interestingly, physical risk (β = .06, t = .67, p > .05) and financial risk (β = -.05, t = -.56, p > .05) had no significant impacts on SE customers' hygiene protective behavior. Psychological risk also positively influenced SE customers' social protective behaviors with small-medium effect (β = .39, t = 5.80, p < .001, f^2 = .10). However, SE customers' social protective behaviors were not affected by physical (β = -.02, t = -.22, p > .05), social (β = .07, t = .92, p > .05), and financial (β = .00, t = .01, p > .05) risks. The positive impact of hygiene protective behavior on behavioral intention (β = .18, t = 3.08, p < .01, f^2 = .03) was found. On the other hand, social protective behavior did not affect SE customers' behavior intentions (β = -.05, t = -.67, p > .05). Interestingly, while hygiene protective behaviors (β = .24, t = 4.12, p < .001, f^2 = .04) positively influenced customers' relative behavior intentions, social protective behavior (β = -.13, t = -2.10, p < .05, f^2 = .01) had a negative impact on relative behavior intention. The results of hypothesis tests are shown in Table 5.

[Table 5]

4.4. Multi-Group Analysis (MGA)

Prior to the MGA, measurement invariance of composite models (MICOM) was assessed and the results was satisfactory. Furthermore, whether the comparison of the two groups was appropriate was tested through measurement invariance test. Since measurement invariance was supported between the two groups (configural and metric invariances) and MICOM results were satisfactory, MGA was performed (Table 6). Psychological risk positively influenced hygiene protective behavior for customers of both accommodation sharing (β = .33, t = 3.21, p < .01) and ride sharing (β = .23, t = 2.37, p < .05). There was a significant difference between accommodation sharing customers and ride sharing customers in the relationship between physical risk and hygiene protective behavior. Consistent with structural model results, social risk was a negative predictor of hygiene protective behavior for customers of accommodation sharing (β = -.45, t = -3.50, p < .001) and ride sharing (β = -.28, t = -3.50, p < .001). The insignificant impact of financial risk on hygiene protective behavior was the same for both accommodation sharing (β = -.20, t = -1.51, p > .05) and ride sharing customers (β = .10, t = 1.10, p > .05). While the positive effect of psychological risk on social protective behavior was significant for both groups, it seemed that it was stronger for ride sharing customers (β = .48, t = 5.53, p < .001) than accommodation sharing customers (β = .28, t = 2.40, p < .05). Physical risk did not influence customers' social protective behavior for both accommodation sharing (β = .14, t = .98, p > .05) and ride sharing customers (β = -.13, t = -1.18, p > .05). Social protective behavior was not influenced by social risk for both accommodation sharing (β = .05, t = .34, p > .05) and ride sharing

customers ($\beta = .09$, $t = .84$, p $> .05$). Financial risk was not a significant antecedent of social protective behavior not only for accommodation sharing ($\beta = -.03$, $t = -.22$, p $> .05$) but for ride sharing customers ($\beta = .02$, $t = .18$, p $> .05$). SE customers' hygiene protective behavior positively influenced their behavior intention regardless of the platform ($\beta_{Accommodation} = .32$, $\beta_{Ride} = .18$, $t_{Accommodation} = 3.43$, $t_{Ride} = 2.15$, $p_{Accommodation} < .001$, $p_{Ride} < .05$). Social protective behavior did not have a significant impact on behavior intention for accommodation sharing ($\beta = -.07$, $t = -.61$, p $> .05$) and ride sharing customers ($\beta = -.06$, $t = -.49$, p $> .05$). Interestingly, ride sharing customers' relative intention was positively influenced by hygiene protective behavior ($\beta = .26$, $t = 3.25$, p $< .01$) and negatively affected by social protective behavior ($\beta = -.22$, $t = -2.74$, p $< .01$). On the other hand, accommodation sharing customers' relative intention was not influenced by hygiene protective behavior ($\beta = .18$, $t = 1.87$, p $> .05$) nor social protective behavior ($\beta = .00$, $t = .00$, p $> .05$).

[Table 6]

4.5. MANOVA and Post-hoc Analyses

After psychological, physical, social, and financial risk constructs were transformed into composite variables, MANOVA was performed to detect potential differences between five classifications of self-protective behaviors in their perceived risks. The results indicated that there were significant differences between self-protective behavior types in their perceived risks ($F_{[4;400]} = 8.32$, p $< .001$). Thus, post hoc ANOVAs were performed to assess the differences for each risk construct (see Figure 2). ANOVA results showed that there were significant differences between self-protective types in their psychological ($F_{[4;400]} = 16.74$, p $< .001$), physical ($F_{[4;400]} = 6.30$, p $< .001$), and social risks ($F_{[4;400]} = 6.63$, p $< .001$), while there was no significant difference in financial risk ($F_{[4;400]} = .71$, p $> .05$).

[Figure 2]

5. Discussion

Customers' perceived risks of SE have been one of the most frequently discussed topics in hospitality and tourism research due to their unique business format, peer-to-peer business, compared to traditional hospitality businesses (Mao and Lyu, 2017). During the COVID-19 pandemic, it would be critical for SE service providers to understand what risks customers perceived highly when they used SE and what protective behaviors they executed to mitigate the risks so that they continue using SE. Selecting the two most commonly used SE types (i.e., accommodation sharing, ride sharing), this study examined the degree of each risk that SE customers perceived during the pandemic and its impact on their protective behaviors, which could affect their future behavior of SE. Adopting Chuo's (2014) typology of self-protective behavior in relation to COVID-19, the study's respondents were classified by five different types of self-protective behavior (see Table 1), showing that more than three-quarters (76%) of them are somewhat or moderately self-protective.

Out of eight frequently addressed perceived risks of SE in the previous studies (i.e., Yi et al., 2020; Yuan et al., 2021), this study included four perceived risks (i.e., psychological, physical, social, and financial risks) to examine customers' perceived risks during the COVID-19 pandemic. Among the four risks, financial (M=3.23), psychological (M=3.18), and physical risks (M=3.09) were relatively higher mean values than social risks (M=2.73), which the respondents considered to select SE services during the COVID-19 pandemic. This finding highlighted that SE customers are conscious about the potential dangers that might occur from their consumption of SE services during the pandemic. To

mitigate their perceived risks of SE, the respondents tended to choose more preventive behavior (i.e., hygiene protective behavior) (M=4.16) than avoidance behavior (i.e., social protective behavior) (M=3.72) from the two self-protective behaviors toward COVID-19. The respondents seemed more actively to protect themselves from COVID-19 by following health and hygiene protocols, instead of avoiding social and public contacts. It might be attributed to the fact that the pandemic persists for too long a period for customers to avoid social and public contacts. Respondents' active self-protective behaviors could result in positive behavior intentions (M=3.92), further supporting previous studies proposing self-protective behaviors might alleviate customers' perceived risk thereby increasing their intention to use SE services during the pandemic (Zheng et al., 2021). However, the impacts of customers' self-protective behaviors on relative intentions (M=4.05), which indicates the respondents would definitely use SE in the future rather than their counterpart traditional services (i.e., hotel or taxi), indicating there is a high chance for SE service providers to sustain their business if they support customers' self-protective behaviors.

To accomplish the study's purposes, this study proposed five hypotheses. In hypotheses 1 and 2, this study attempted to examine effects of SE customers' perceived risks of SE on two types of protective behaviors (i.e., hygiene and social). Only psychological risks had a significantly positive impact on both protective behaviors. When SE customers felt the psychological uneasiness of using SE (i.e., nervous, uncomfortable, and anxious), they actively protected themselves by taking preventive actions (i.e., wash hands, use disinfectant, or avoid infected surfaces) as well as avoiding social contacts with others. Interestingly, social risks appeared to have a significantly negative impact on hygiene protective behavior. Given the lowest mean value of social risk among the four types of risks, SE customers might have felt less social risk of SE (i.e., low class, cheap, or self-image) but still had strong hygiene proactive behavior. In general, SE customers are more attentive to self-protection than their self-image associated with using SE during the pandemic. Both physical and financial risks have no impact on hygiene protective behavior, while three perceived risks (physical, social and financial) have no impact on social protective behavior, which assumes that these risks could not be mitigated by SE customers' compliance with health and hygiene protocols and their controlling social contacts, respectively.

Overall, the respondents showed strong intentions to use SE, even against traditional hospitality services, during the pandemic as far as they protected themselves from COVID-19 by following health and hygiene protocols. However, when the respondents showed strong social protective behavior, they tended not to use SE during the pandemic, representing their negative relationship between social protective behavior and behavior intention. As shown in Table 6, for both accommodation sharing and ride sharing, the respondents' psychological risks of SE had significantly positive impacts on both self-protective behaviors (i.e., hygiene and social) and their social risks of SE had significantly negative impacts on their hygiene protective behavior. Their compliance with health and hygiene protocols had strong intentions to use their respective SE.

However, there are slight differences between accommodation sharing and ride sharing respondents. For accommodation sharing respondents, due to respondents' perceived physical risks of SE, they tended to protect themselves by following health and hygiene protocols. For ride sharing respondents, as far as they followed health and hygiene protocols, they had strong intentions to use Uber or other ride sharing than taxi. In other words, when customers have options to use either ride sharing or other options (e.g., taxi), they were more likely to use ride sharing. However, when only asking about ride sharing, they tended not to use ride sharing at all, due to social distancing and social contacts with others. Three perceived risks (i.e., psychological, physical, and social) were significantly different by respondents' self-protective classifications. In general, both psychological and physical risks

are perceived differently by respondents' self-protective classifications as Type 5 respondents were highly conscious about their perceived psychological and physical risks, while Type 1 respondents were not at all conscious about them. However, Type 3 respondents were more conscious about their social risks than other types. There is no difference in financial risks by the self-protective classification.

6. Conclusions
6.1. Theoretical Implications

This study provides several theoretical contributions. First, based on the protection motivation theory and adaptive coping behavior literature, the present study offers a comprehensive understanding of how customers' self-protective behaviors can mitigate their perceived risks, thereby influencing their intentions to use SE during the pandemic. Thus, this study further extends the boundary of protection motivation theory and adaptive coping behavior to the SE context during the pandemic. Particularly, given that COVID-19 is transmitted mostly through human interactions, the application of the protection motivation theory to the SE context during the COVID-19 pandemic was one of the key contributions of this study since SE is different from traditional hospitality businesses in its triadic nature in which different stakeholders interact with each other (Eckhardt et al., 2019). Furthermore, the results indicated that the significant effects of psychological risk on both hygiene and social protective behaviors further signify the importance of psychological factors (e.g., feelings) in customers' behaviors and decision-making (Kusev *et al*., 2017), providing corroborated evidence to the protection motivation theory. Specifically, the importance of social protective behaviors might have been relevant to SE contexts due to the rapid transmission of COVID-19 in public places.

Second, the findings illustrated that physical and financial risks had no significant impacts of SE customers' protective behaviors, while psychological and social risks significantly influenced self-protective behaviors. It perhaps suggests that intrinsic risks are more critical than extrinsic risks in influencing customers' behaviors. In addition, this finding further strengthens the argument of previous studies (Laroche *et al*., 2004) that the importance of perceived risk dimensions would be divergent. The negative influence of physical risk on SE customers' behavior intention was found, suggesting that customers are more likely to give up when they feel using SE are physically risky, which was consistent with previous studies confirming the negative relationship between perceived risk and behavioral intention (e.g., Yi *et al*., 2020; Yu *et al*., 2021). This might be explained by which Maslow's hierarchical needs, since physiological and safety needs are the most important. In a similar vein, the hierarchical nature of human motivation (need) might also explain that social and financial risks had no significant effects on SE customers' intentions. Also, the results described that SE customers' relative intention was negatively influenced by psychological risk, while it was not affected by financial risk. Thus, this study provides further support to previous literature suggesting that psychological factors are more critical than economic factors in customers' decision making (e.g., Sarwar and Afaf, 2016).

Third, the significant difference between accommodation sharing and ride sharing customers provides a new perspective to understand customer behavior within the same context. Specifically, the findings show divergent results between accommodation sharing and ride sharing, indicating that customers' perceptions and subsequent behaviors could be different even though both are considered as SE. Lastly, results of the MANOVA and post-hoc analyses describe that the degree of customers' perceived risks varies by their self-protective behavior classification, which provides another support for the precaution-adoption process model (Weinstein *et al*., 1998).

6.2. Practical Implications

The findings of this study also offer practical implications for SE platforms (e.g., Airbnb, Uber) and service providers (e.g., Airbnb hosts, Uber drivers). First of all, the findings recommended SE platforms and service providers to encourage their customers' self-protective behaviors since the more customers are involved in self-protective behaviors, the more they are likely to use SE services during the pandemic. Particularly, it is more important to promote customers' hygiene protective behaviors as both behavioral intention and their relative preference of SE services, compared to other traditional services, are positively influenced by hygiene protective behaviors. Accordingly, it is highly recommended that SE service providers must prepare PPEs so that their customers can be easily engaged in hygiene protective behaviors. For example, SE platforms may consider the equipment of air purifiers at their properties so that customers can protect themselves during their consumption of SE services. Furthermore, SE platforms and service providers should also communicate with their customers that COVID-19 can be prevented if they are engaged in self-protective behaviors and using SE services is safe as long as self-protective behaviors are performed. Since the findings indicated that psychological risks positively impacted SE customers' hygiene protective behaviors, understanding customers' perceived risks of SE would be beneficial to better promote customers' self-protective behaviors, thereby increasing their intention to use SE (rather than traditional services).

The results showed that SE customers' social protective behavior mediated the impact of psychological risks and relative intention, suggesting SE platforms and service providers to further segment their market to identify customers with high psychological risks. As the market situation is different from pre-pandemic, further segmentation would help the platforms and service providers to attract the customers who are skeptical about using SE services during the pandemic because of the high risks. When targeting customers with high psychological risks, SE platforms and service providers should note that one of their strengths is the variety of options, which allows customers to reduce their exposure to public spaces and contact with others. For example, Airbnb should highlight that customers have different options, such as an entire place and private room, showing that they can minimize their contact with others during their stay (i.e., social protective behavior), thereby increasing relative intention compared to traditional lodging accommodations. In a similar vein, Uber might want to point out that customers can socially protect themselves by not choosing shared rides (e.g., Uber Pool).

The MGA results showed that there are significant differences between accommodation sharing and ride sharing customers. Therefore, SE platforms and service providers are encouraged to further refine their strategies based on the type of platform (i.e., accommodation sharing vs. ride sharing). For example, the positive impact of physical risk on hygiene protective behavior was only significant for accommodation sharing customers. Hence, sharing accommodation platforms (e.g., Airbnb) and service providers (e.g., Airbnb hosts) are recommended to examine their customers' perceived physical risk and promote their hygiene protective behavior, so that their behavior intention can be positively influenced. As the findings of this study indicated that more than 81% of the respondents were classified as somewhat, moderately, and extremely self-protective types, SE service providers should be careful to develop their own operational and business strategies that mitigate customers' psychological, physical, and social risks of SE during the pandemic.

6.3. Limitations and Future Studies

This study is not free from limitations. First of all, the population of interest of this study is restricted to customers of accommodation sharing and ride sharing. In other words, the findings of this study are only applicable to customers of SE within the context of

hospitality. Accordingly, the findings might not be generalized to other SE platform customers, such as Poshmark (PWC, 2015). Although accommodation sharing and ride sharing are the most popular sharing economy platforms (Arcidiacono *et al*., 2018), customers' perceived risks and their self-protective behaviors might be different by the context. Although this study compared customers between accommodation sharing and ride sharing, further studies are highly encouraged to add more SE contexts to see potential differences.

Second limitation lies in the data. The data were collected in the fourth quarter of 2021, when approximately 71% of the U.S. population were vaccinated with at least one dose (as of December 5, 2021 EST) (CDC, 2021). As shown in the respondents' profile, most of the respondents were already vaccinated, and many SE platforms have also required service providers to follow local guidelines to protect potential transmission of COVID-19, which might have reduced SE customers' perceived risks of using SE during COVID-19. Hence, it would be interesting if future studies adopt different time points during a pandemic to examine potential differences in customers' perceived risks and self-protective behaviors.

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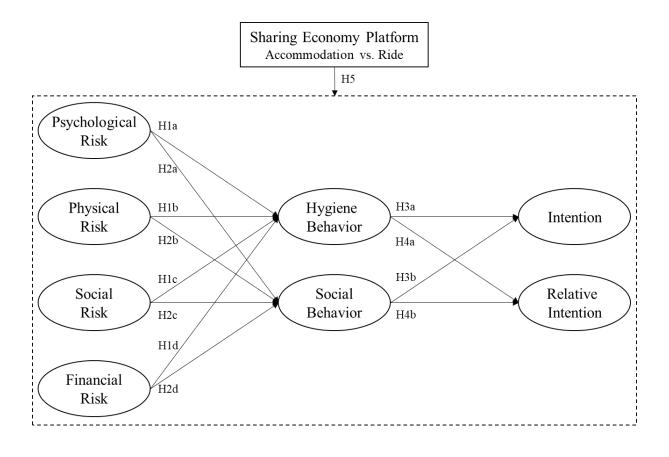
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Figures

Figure 1. Research Framework
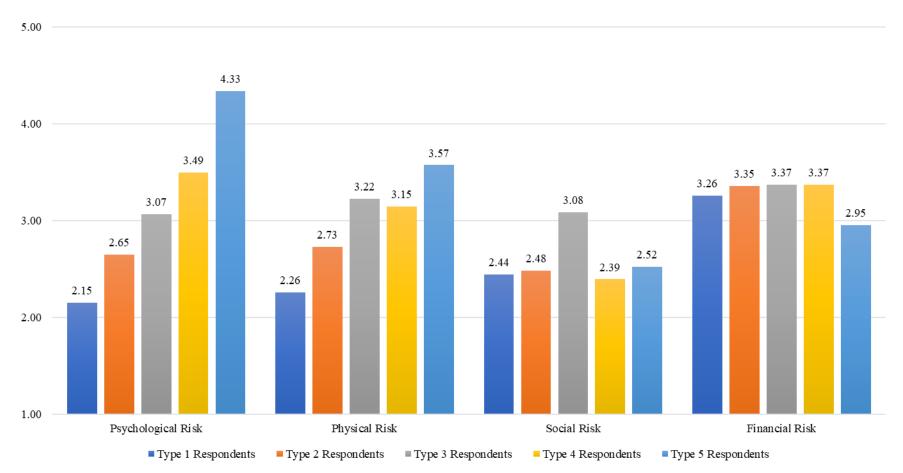
Figure 2. Perceived Risks by Self-Protective Classification

Note. Psychological Risk (F = 16.74; p < .000***); Physical Risk (F = 6.30; p < .000***); Social Risk (F = 6.63; p < .000***); Financial Risk (F = .71; p >.05)

Tables

Table 1. Typology of Respondents' Self-Protective Behavior

Measurement Items	Respondents' Responses				
1. Do you perceive that people are at risk of infection from the COVID-19 pandemic? [Yes or No]	No	Yes	Those who don't belong to Types 1 and 2		
2. Do you perceive personal risk of infection from the COVID-19 epidemic? [Yes or No]		No			
3. In comparison with the days before, your intention to stay at {accommodation sharing}/use {ridesharing}during the COVID-19 outbreak period… [Increased; did not change; decreased; ceased completely]			Increased or did not change	Those who don't belong to Types 1, 2 and 3	
4. In comparison with the days before, the frequency of your actual staying at {accommodation sharing}/using {ridesharing}the COVID-19 outbreak period. . . [Increased; did not change; decreased; ceased completely]				Increased, did not change, or decreased	Ceased completely
Self-Protective Typology Classification	**Type 1**	**Type 2**	**Type 3**	**Type 4**	**Type 5**
	Not at all self-protective ………………………………Extremely self-protective				

Table 2. Respondents' Profile

Demographic Profile (N = 405)	N	%
Gender		
Male	216	53.3%
Female	189	46.7%
Age		
18-24 years old	22	5.4%
25-34 years old	172	42.5%
35-44 years old	116	28.6%
45-54 years old	58	14.3%
55-64 years old	29	7.2%
65-74 years old	8	2.0%
Ethnicity		
Asian or Pacific Islander	23	5.7%
Black or African American	26	6.4%
Hispanic or Latino	18	4.4%
Native American or Alaskan Native	4	1.0%
White or Caucasian	331	81.7%
Multiracial or Biracial	2	0.5%
A race/ethnicity not listed here	1	0.2%
Highest Education		
High school graduate	36	8.9%
Associate degree (2-year)	21	5.2%
Bachelor's degree (4-year)	233	57.5%
Postgraduate Degree	104	25.7%
Household Income		
$30,000 or less	63	15.6%
$30,001 to $50,000	78	19.3%
$50,001 to $70,000	102	25.2%
$70,001 to $90,000	75	18.5%
$90,001 to $110,000	35	8.6%
$110,001 to $130,000	19	4.7%
$130,001 to $150,000	22	5.4%
More than $150,000	11	2.7%
Employment Status		
Employed full-time	343	84.7%
Employed part-time	22	5.4%
Self-employed or business owner	19	4.7%
Unemployed	13	3.2%
Retired	1	0.2%
Student	5	1.2%
Others	2	0.5%
Platform Type		
Accommodation Sharing	210	51.9%
Airbnb	164	40.5%
Other than Airbnb	46	11.4%

Ride Sharing	195	48.1%
Uber	172	42.4%
Other than Uber	23	5.7%
Self-Protective Adopter Classification		
Type 1	27	6.7%
Type 2	48	11.9%
Type 3	179	44.2%
Type 4	130	32.1%
Type 5	21	5.2%

Table 3. Construct Descriptive Statistics

Construct/Item	Mean	Sd	FL	α	CR	AVE	Skew	Kurto
Psychological Risk[1]	3.18			0.93	0.95	0.83		
I feel nervous staying at/riding [Selected Platform].	3.16	1.21	0.90				-0.37	-0.88
Staying at/Riding [Selected Platform] gives me a feeling of unwanted anxiety.	3.24	1.31	0.91				-0.39	-1.01
Staying at/Riding [Selected Platform] makes me feel psychologically uncomfortable.	3.08	1.24	0.91				-0.35	-0.96
Staying at/Riding [Selected Platform] causes me to experience unnecessary tension.	3.23	1.35	0.91				-0.35	-1.10
Physical Risk[1]	3.09			0.84	0.89	0.68		
Staying at/Riding [Selected Platform] may pose a threat to my personal safety.	3.09	1.18	0.88				-0.31	-0.93
[Selected Platform] guests who share rooms/places with me may pose a threat to my safety.	3.28	1.15	0.86				-0.44	-0.63
[Selected Platform] is not clean.	2.76	1.24	0.74				0.14	-1.05
When staying at/riding [Selected Platform], there is a possibility of burglary, break-in, or theft.	3.21	1.21	0.81				-0.33	-0.80
Social Risk[1]	2.73			0.94	0.96	0.82		
Staying at/Riding [Selected Platform] may affect my image in the eyes of others.	2.72	1.31	0.91				-0.02	-1.35
Staying at/Riding [Selected Platform] may not match my self-image.	2.81	1.39	0.89				0.07	-1.27
Others may think that staying at/riding [Selected Platform] is low class.	2.70	1.35	0.92				0.03	-1.36
Others may view me as cheap if I stay at/use [Selected Platform].	2.70	1.38	0.90				0.05	-1.37
Others may judge me for making a bad choice if I stay at/use [Selected Platform].	2.73	1.35	0.90				0.02	-1.37
Financial Risk[1]	3.23			0.81	0.89	0.72		
[Selected Platform] may not have a uniform pricing standard.	3.34	1.13	0.74				-0.50	-0.54
Staying at/Riding [Selected Platform] would not get me my money's worth.	3.11	1.27	0.89				-0.17	-1.04
I worried that staying at/riding [Selected Platform] would involve unexpected extra expenses.	3.25	1.22	0.91				-0.38	-0.86
Hygiene Protective Behavior[2]	4.16			0.77	0.85	0.59		
Pay attention to personal hygiene.	4.31	0.81	0.74				-1.21	1.70
Wash hands.	4.28	0.85	0.81				-1.00	0.44
Use disinfectant.	3.98	0.97	0.78				-0.77	0.11
Avoid contacts with potentially infected surfaces.	4.07	0.90	0.75				-0.86	0.44
Social Protective Behavior[2]	3.72			0.75	0.86	0.67		
Avoid contacting with others at [Selected Platform] (e.g., host, other guests).	3.70	0.97	0.78				-0.80	0.60

Avoid using public areas of [Selected Platform].	3.64	1.15	0.85				-0.65	-0.29
Closely monitor the physical health of the people at [Selected Platform].	3.81	1.00	0.81				-0.81	0.34
Intention[1,3]	3.92			0.84	0.89	0.74		
I will stay at/ride [Selected Platform] when travelling in the near future.	3.90	0.90	0.94				-0.96	1.28
I plan to stay at/ride [Selected Platform] when travelling in the near future.	4.01	0.98	0.85				-1.04	0.96
I will make an effort stay at/ride [Selected Platform] when travelling in the near future.	3.85	1.01	0.78				-0.99	0.90
Relative Intention[1,3]	4.05			0.86	0.91	0.77		
I will stay at/ride [Selected Platform] rather than a hotel/a taxi cab.	3.98	0.91	0.93				-0.74	0.48
I prefer to stay at/ride [Selected Platform] rather than a hotel/a taxi cab.	4.10	0.96	0.80				-1.03	0.76
I would choose to stay at/ride [Selected Platform] rather than a hotel/a taxi cab.	4.06	0.91	0.88				-1.02	1.10

Note. [1] A 5-Likert scale, 1 being 'strongly disagree' to 5 being 'strongly agree'; [2] A 5 point scale, 1 being 'never' to 5 being 'always';
For all questions, the respondents were reminded that the questions asked their opinions during the COVID-19 pandemic.

Table 4. Fornell and Larker Criterion of Discriminant Validity

	1	2	3	4	5	6	7	8
Psychological Risk	0.91 (NA)							
Physical Risk	0.68 (0.77)	0.82 (NA)						
Social Risk	0.56 (0.60)	0.64 (0.73)	0.90 (NA)					
Financial Risk	0.50 (0.55)	0.64 (0.78)	0.65 (0.72)	0.85 (NA)				
Hygiene Protective Behavior	0.10 (0.14)	0.00 (0.11)	-0.17 (0.19)	-0.09 (0.12)	0.77 (NA)			
Social Protective Behavior	0.42 (0.49)	0.29 (0.35)	0.28 (0.31)	0.23 (0.28)	0.49 (0.66)	0.82 (NA)		
Intention	-0.19 (0.19)	-0.17 (0.18)	-0.03 (0.11)	0.02 (0.07)	0.16 (0.17)	0.04 (0.13)	0.86 (NA)	
Relative Intention	-0.21 (0.22)	-0.17 (0.18)	-0.15 (0.15)	-0.04 (0.06)	0.17 (0.19)	-0.01 (0.07)	0.53 (0.62)	0.88 (NA)

Note. The values in the parenthesis indicate HTMT.

Table 5. Hypothesis Test

Hypothesis			Est	se	T	f^2	p	Results
Psychological Risk	→	Hygiene Protective Behavior	0.27	0.07	3.85	0.04	< 0.001***	Supported
Physical Risk	→	Hygiene Protective Behavior	0.06	0.09	0.67	0.00	> 0.05	Not Supported
Social Risk	→	Hygiene Protective Behavior	-0.33	0.07	-4.79	0.06	< 0.001***	Supported
Financial Risk	→	Hygiene Protective Behavior	-0.05	0.09	-0.56	0.00	> 0.05	Not Supported
Psychological Risk	→	Social Protective Behavior	0.39	0.07	5.80	0.10	< 0.001***	Supported
Physical Risk	→	Social Protective Behavior	-0.02	0.08	-0.22	0.00	> 0.05	Not Supported
Social Risk	→	Social Protective Behavior	0.07	0.07	0.92	0.00	> 0.05	Not Supported
Financial Risk	→	Social Protective Behavior	0.00	0.08	0.01	0.00	> 0.05	Not Supported
Hygiene Protective Behavior	→	Intention	0.18	0.06	3.08	0.03	< 0.01**	Supported
Social Protective Behavior	→	Intention	-0.05	0.08	-0.67	0.00	> 0.05	Not Supported
Hygiene Protective Behavior	→	Relative Intention	0.24	0.06	4.12	0.04	< 0.001***	Supported
Social Protective Behavior	→	Relative Intention	-0.13	0.06	-2.10	0.01	< 0.05*	Supported

Table 6. Pairwise Bootstrapping Results (N = 5000)

Hypothesis			Accommodation			Ride		
			Est	*t*	*p*	*Est*	*t*	*p*
Psychological Risk	→	Hygiene Protective Behavior	0.33	3.21	< 0.01**	0.23	2.37	< 0.05*
Physical Risk	→	Hygiene Protective Behavior	0.30	2.35	< 0.05*	-0.08	-0.69	> 0.05
Social Risk	→	Hygiene Protective Behavior	-0.45	-3.50	< 0.001***	-0.28	-3.50	< 0.001***
Financial Risk	→	Hygiene Protective Behavior	-0.20	-1.51	> 0.05	0.10	1.10	> 0.05
Psychological Risk	→	Social Protective Behavior	0.28	2.40	< 0.05*	0.48	5.53	< 0.001***
Physical Risk	→	Social Protective Behavior	0.14	0.98	> 0.05	-0.13	-1.18	> 0.05
Social Risk	→	Social Protective Behavior	0.05	0.34	> 0.05	0.09	0.84	> 0.05
Financial Risk	→	Social Protective Behavior	-0.03	-0.22	> 0.05	0.02	0.18	> 0.05
Hygiene Protective Behavior	→	Intention	0.32	3.43	< 0.001***	0.18	2.15	< 0.05*
Social Protective Behavior	→	Intention	-0.07	-0.61	> 0.05	-0.06	-0.49	> 0.05
Hygiene Protective Behavior	→	Relative Intention	0.18	1.87	> 0.05	0.26	3.25	< 0.01**
Social Protective Behavior	→	Relative Intention	0.00	0.00	> 0.05	-0.22	-2.74	< 0.01**