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Article

Risk Perception in the Post COVID-19 Pandemic Era: An Analysis of Tourist Accommodation and Travel Behavior in the New Normal Era

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Abstract: After two years of the COVID-19 pandemic, research on travel risk perception has been dominated by the study of health risks as a significant factor that influences tourists' purchase behavior toward tourism and hospitality products, such as accommodation selection. However, research on other travel-risk-related factors remains limited. This study aimed to fill this gap in the literature. Through exploratory factor analysis, the study explored various risk perception factors toward staying in tourist accommodation among tourists during the easing of travel restrictions in Indonesia. Through a survey of 411 foreign and domestic tourists, the study identified 22 risk items and categorized the items into the following 5 dimensions of risk perception: potential loss risk (six items, 39.9% variance), psychological risk (five items, 9.1% variance), health risk (four items, 5.7% variance), social risk (three items, 5.3% variance), and financial risk (four items, 4.7% variance). This study is one of the few studies on risk perception that proposes a multi-dimensional approach rather than a single-dimension approach to risk perception in the hospitality context. These findings may enhance the literature on travel risk perception amidst the crisis and contribute to tourism recovery strategies in the post-pandemic era.

Keywords: factor analysis; risk perception; perceived risk; tourist behavior; post-pandemic; tourism recovery; new normal

1. Introduction

Since tourist decision-making is complex, and because purchase decision-making is a multi-factorial process, in the study of purchase behavior in the tourism context, various determinants can be applied as antecedents. One of the determinants in defining tourist behavior is risk perception. Risk perception, also known as 'perceived risk,' indicates the amount of uncertainty of the negative impact that a specific situation may have on an individual. Tourist perceived risk of a risky destination can also be assessed in terms of the COVID-19 outbreak. Since most of the studies on the perceived risk of tourism are focused on crime, terrorism, and natural disasters, the perceived risk of tourism in the context of disease and pandemic is still limited [1–3]. Hence, the need for studies on the perceived risk of tourism in the context of COVID-19 remains. Countries in Asia, for example, are perceived as risky destinations by Western tourists due to an ongoing perception of risk regarding the COVID-19 outbreak in China and surrounding Asian countries [4]. Thus, given the worldwide spread of COVID-19, the perceived risk of COVID-19 likely impacts the visit intention of tourists towards almost every country in the world, including Indonesia, one of the most popular tourist destinations in Southeast Asia.

Since the nationwide implementation of the COVID-19 vaccination program in early 2022, the Indonesian government began to loosen mobility restrictions. Public meetings and social events are now permitted in public areas by the local government. Moreover,

Indonesia hosted the Mandalika MotoGP Grand Prix in March 2022, drawing more than 100,000 attendees from around the globe. Shortly after this global event, Indonesia also began holding a number of pre-events ahead of the G20 summit, which will take place in Bali in December 2022. High-level meetings and conferences with domestic and foreign participation have been conducted in several Indonesian cities since the middle of the year. Since then, along with the easing of the pandemic, the tourism industry has been expanding quickly. However, this condition leads to the following important question: do travelers still perceive there to be any travel risks with respect to the current COVID-19 circumstances? This study aimed to investigate this research question.

1.1. Risk Perception, Tourist Behavior, and Tourism Sustainability in the Post-Pandemic Era

Risk perception is one of the critical determinants in defining protective behavior. One study revealed that health risk perception is the second-priority concern of travelers when performing their travel activities. Although there are several kinds of risks, such as political risk, health risk, environmental risk, planning risk, and property risk [5], the concern for health risk is important when relating tourism activities to the potential hazards that might arise during those activities.

How individuals think and feel about their risks will influence their actual risk avoidance action. For example, public responses to the swine flu outbreak in 2009 showed that health intervention programs for the public can be supported by increasing individual risk perception [6]. Furthermore, since the COVID-19 outbreak in 2019, the concern about health risks in the context of tourism and hospitality has been increasing rapidly. Health and safety issues have become a significant factor in customer decision-making, especially in tourism and hospitality services. The importance of health and safety signals should be made more tangible to service managers so that they provide them more often. By providing safety signals that reduce the perceived risk of the pandemic, the quality of services can be ensured [7].

Defining risk perception requires judgment of the potential risks that people may take in the context of a crisis or disaster. This kind of judgment will shape behavior toward tourism and travel [8]. Perceived risk in traveling refers to situations where travelers are concerned about potential hazards that might occur while traveling to a destination because of terrorism, political volatility, or health risks. In the tourism and hospitality literature, the concept of risk has been discussed for decades in various contexts, such as destination choices [9], peer-to-peer accommodation risk perception [10], and risk perception when booking a smart hotel [11]. Some scholars have proposed five dimensions in defining the risks involved in tourism. Meanwhile, other studies propose six dimensions or seven dimensions. Financial risk, physical risk, social risk, performance risk, and health risk are the five dimensions of risk that a tourist could consider in their decision-making process [12]. Meanwhile, an additional time risk (sixth dimension) and opportunity loss (seventh dimension) are other types of risk potential that have been described in tourism studies [2].

In the context of the COVID-19 pandemic, several researchers have investigated the role of perceived risk in travel behavior for various topics. Travel anxiety is one of the rising issues regarding the perceived risk of traveling during the pandemic. The COVID-19 outbreak makes travel plans more uncertain and challenging. People tend to decrease their international travel and prefer a domestic destination for their upcoming travel plans. Moreover, some tourists prefer to travel in a small group rather than a larger group to reduce the health risk potential [13,14].

Another study investigated the correlations between perceived risk and adaptive belief in the context of COVID-19 in the hospitality sector. Their findings showed that consumer expectations and perceptions are threatened by the uncertainty of the current status of the COVID-19 pandemic. Through three items of perceived health risk, they validated the role of perceived health risk toward customer belief in hospitality services [15]. Tourist perceived risk is an essential predictor in implementing travel behavior [16,17]. A study

also investigated tourist travel intention to international destinations during the COVID-19 pandemic. This study suggests that the perceived knowledge of COVID-19 and the psychological risk of the tourist have a significant impact on travel intention [18]. During the COVID-19 outbreak, the change in traveling behavior regarding consumer health and safety has raised concerns about the health risk perception in purchase decisions. In hospitality studies, some scholars argued that customers assess the health factors before purchasing services to avoid the COVID-19 outbreak [19]. Thus, health risk perception is a significant concern in the consumer decision process during and after the COVID-19 pandemic [20,21], including in the selection of accommodation among hotel customers during the COVID-19 pandemic.

The issue of sustainability of the tourism and hospitality industry after the COVID-19 outbreak is also becoming more prominent. Several studies have predicted tourist behavior changes after the pandemic, such as the change in choice of destination, duration of the trip, and changes in the way people travel [22]. Moreover, sustainability research usually focuses on a number of the industry's specific operations. However, the COVID-19 crisis pervades all the activities and operations. While the hospitality industry is no stranger to natural disasters, the global nature of the COVID-19 crisis has taken sustainability into a new era [23].

1.2. Risk Perception Studies during COVID-19

This study aims to investigate the tourist risk factors for COVID-19 in the context of the hospitality industry in the post-pandemic era. Based on a literature review, the authors found several studies that propose factors of risk perception toward the COVID-19 pandemic with a single risk factor [24,25], and other studies proposed multi-dimensional factors of risk perception [4,18]. Thus, most studies focus on health risk factors in their investigation, and other factors have still not been yet elaborated on sufficiently.

We found a study that proposes a deeper analysis of tourist risk perception amidst the COVID-19 outbreak. This study investigated the risk perception associated with visiting Wuhan after the COVID-19 outbreak among tourists and proposed 13 items of risk factors in 4 risk dimensions. All the risk dimensions for each group of items have shown good reliability, with a Cronbach alpha of more than 0.9, indicating good consistency in explaining the tourist risk perception during the early stage of the pandemic [4].

Meanwhile, Yildirim and Guler proposed the COVID-19 Perceived Risk Scale (CPRS) to provide a psychometric scale to assess people who are vulnerable to the outbreak. Their research summarized eight risk perception items categorized into two dimensions, the cognitive dimension and emotional dimension [26]. Unlike the CPRS, Zenker proposed the Pandemic Anxiety Travel Scale (PATS) help scholars to measure the risk perception of COVID-19 among travelers. Their study proposes a five-item scale to measure the pandemic's influence on travel anxiety. The easier and shorter risk item scales are as follows: 'worrying about normal way of traveling', 'uncomfortable to think about COVID while planning the trips', 'Afraid of risking life to travel during pandemic', 'anxious of listening to the COVID-19 related news', and 'Do not feel safe to travel due to COVID-19'. Their study has been validated in two different research contexts with a large number of respondents (USA = 2180 samples; Denmark = 2062 samples). Thus, through nomological validity and reliability tests, they are confident in proposing their five-item solutions as a method to measure the pandemic travel anxiety among travelers [25].

Furthermore, a study also concluded that perceived risk is influencing the booking intention of hotel customers during the pandemic. Their study reveals that perceived health risk mediates the relationship between expected interaction and hotel booking intention [21]. In a similar vein, a study in Vietnam also found that customer risk perception toward COVID-19 disease has impacted hotel booking intention. Their study found that perceived risk (before and after COVID-19) has a negative effect on hotel booking intention [27]. Research by Rather also strengthens the findings that risk perception toward the COVID-19 pandemic is impacting customer brand engagement and their revisit intention toward a

destination. His study concluded that the variables 'fear of COVID-19' and 'perceived risk' negatively moderate the linkage between social media and revisit intention [28]. Table 1 describes the literature regarding risk perception in the context of the COVID-19 pandemic during the past three years.

Table 1. Literature Regarding Perceived Risk on COVID-19.

No	Author	Key Findings	Risk Factors
1	Yildirim and Guler (2020) [26]	This study adapted an 8-item COVID-19 Perceived Risk Scale (CPRS) to assess pandemic-related personal risk and categorized risk into two dimensions	- Cognitive dimension (4 items) - Emotional dimension (4 items)
2	Bratic et al. (2021) [13]	Investigates the role of risk perception toward travel behavior during the COVID-19 pandemic	COVID-19 risk perception (4 items)
3	Minh and Mai (2021) [27]	Compares the perceived risk of COVID-19 and booking intention between Love Hotel and Tourist Hotel customers in Vietnam	Risk perception before COVID-19 - (3 items) - Risk perception after COVID-19 - (3 items)
4	Zenker et al. (2021) [25]	Proposes the Pandemic (COVID-19) Anxiety Travel Scale (PATS) as an alternative measurement of intra-anxiety of individuals when travelling during the pandemic era	- Pandemic Anxiety Travel Scale - (6 items)
5	Chua et al. (2021) [29]	Investigates the reluctancy to travel to international destinations among US tourists during COVID-19 pandemic	- Perceived susceptibility (3 items) - Perceived severity (3 items) - Perceived psychological risk related to COVID-19 (5 items)
6	Turnsek et al. (2021) [30]	Analyzes the impact of perceived threat (severity and susceptibility) and past travel experience toward future travel avoidance	- Perceived susceptibility (3 items) - Perceived severity (4 items)
7	Foroudi et al. (2021) [15]	Examines the customer's perception of the shock of COVID-19 and its impact on their beliefs	- Perception of shock of disaster - (4 items) - Perception health risk (3 items)
8	Rather (2021) [28]	Investigatesthe effects of social media on customer brand engagement (CBE) and their consequent impact on co-creation and revisit intention in pandemic environments	- Perceived risk (3 items) - Fear of COVID-19 (7 items)
9	Zhan et al. (2022) [4]	Investigates risk perception using a 13-item scale with 4 dimensions among Chinese residents regarding visiting Wuhan after COVID-19 outbreak	- Health risk (5 items) - Financial risk (3 items) - Social risk (3 items) - Performance risk (2 items)
10	Ertaş and Kirlar (2022) [24]	Reveals the group differences in travel risk perception, travel behavior and behavioral intention in terms of the tourists' sociodemographic characteristics	Single factor 'risk perception' (9 items)

Although several studies have investigated COVID-19 risk perception with numerous risk items and dimensions, the existence of a robust measurement scale for this variate is still arguable in different study contexts, whether risk perception is a single dimension or multi-dimensional variable. This gap in the literature is interesting. Since various

publications have proposed a single risk dimension with several items (such as PATS and CPRS), the authors in this study implement a multidimensional approach in analyzing risk perception (health risk, social risk, psychological risk, and others). Thus, this study will investigate risk perception based on the validated risk items through a literature review and focus group discussion. A five-point Likert scale *(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree)* is implemented to measure risk perception in the survey design with acceptable statistical standards [31]. The implementation of these methods will be further detailed in the results section.

2. Materials and Methods

2.1. Research Design

In the first step, the authors collect all the related literature and categorize the risk items into some codes of risk factors, such as health risk, social risk, psychological risk, time risk, performance risk, financial risk, physical risk, and other risk-related items toward COVID-19. For example, the risk items related to health risks (severity of COVID-19, susceptibility to the disease, self-isolation, and quarantine) from all previous publications are categorized into the 'health-related factors' code. Thus, this risk category will be discussed among the FGD participants to validate the items regarding the current condition of the COVID-19 outbreak. Then, the final risk items are transformed into an interactive online questionnaire using G-Form (a web-based survey platform provided by Google) to be distributed to the target respondents for the main test. However, a pilot test was conducted to test the validity and reliability of the questionnaire before the main test.

2.2. Questionnaire Development and Sampling Method

For the main test, data were collected online and via printed questionnaires for domestic and foreign tourists staying in tourist accommodation in Indonesia. There are three sections in the questionnaire, which include assessment questions regarding the eligibility of respondents' criteria (Section 1), risk perception items (Section 2), and respondents' socio-demography (Section 3). Since the study aims to conduct a factor analysis of risk in the early period when the number of COVID-19 cases in Indonesia decreased, purposive sampling is applied to recruit FGD participants and the sample for the main test. Purposive or judgemental sampling is a sampling strategy that relies on the researcher's judgment rather than random selection procedures. The value of judgmental sampling is dependent on the researcher's judgment, knowledge, and inventiveness. Although purposive sampling is rapid and easy, it does not allow for direct generalizations to a particular group, mainly because that population is not explicitly specified [32].

Hence, since the total population of the study is difficult to measure, the authors implement the infinite population basis to measure the sample size. The target population for the study is foreign and domestic tourists who travel and stay in tourist accommodation from March to July 2022 (the early stage of the easing of COVID-19 travel restrictions in Indonesia). We may assume that the total population was roughly 20 million tourists during that period (average of 500 visits per month based on data from the Ministry of Tourism and Creative Economy of Indonesia). In that case, the Taro Yamane formula is essential for determining the appropriate sample size [33]. It suggests a straightforward method for computing sample sizes based on the maximum variability (*p* = 0.5) and a 95% confidence level. The Yamane sampling formula is stated as follows:

$$n = N/k + [N \times (e)^2] \tag{1}$$

where *n* = sample size; *N* = population; *k* = constant (1); and *e* = degree of error. Hence, a minimum of 400 respondents was required for this analysis. This sampling procedure also follows previous works, such as the study on factor analysis and travel behavior in Thailand [34], and the study of emotional experiences regarding behavioral intention in halal tourism [35]. Thus, to obtain the target respondents, the first author distributed questionnaires personally in some popular tourist destinations in Indonesia, such as Jakarta,

Bali, Lombok, Yogyakarta, and Bogor. Meanwhile, online questionnaires were distributed through social media and messenger apps to reach the target respondents.

2.3. Data Analysis Method

Regarding the data analysis method, this study conducts exploratory factor analysis (EFA) to investigate the risk perception among travelers during the decrease in COVID-19 cases in Indonesia. In the data analysis section using EFA, this study extracts the factors using principal component analysis (PCA), which is commonly used among scholars and is also included in the default setting in most statistical software packages. The advantage of using PCA is its capability to lower the noise sensitivity, and it can increase the efficiency in resulting small dimensions [36]. Meanwhile, the rotation method uses orthogonal varimax rotation to analyze factors, which is also commonly used among scholars. Orthogonal rotation can more effectively produce uncorrelated factors compared to the oblique rotation method. Hence, varimax orthogonal is applied in this study to produce a more straightforward interpretation of the resulting factors.

3. Results

3.1. Focus Group Discussion

After summarizing the items and dimensions of tourist risk perception from tourism and hospitality literature, the authors conducted two FGDs to validate the risk items with the current context of the study. Eleven travelers with various travel styles and accommodation selections participated. An independent administrator was recruited to transcribe the FGDs. Meanwhile, the first author categorized the discussion into several risk dimensions categories (health, psychology, social and financial), and non-categorical items were grouped as 'uncategorized' to be further evaluated among the authors. For example, a topic discussion that highlights keywords such as "self-isolation," "quarantine," and "infected" is categorized as health risk.

Meanwhile, keywords such as "regulation," "mandatory," "back-up plan," and "limitation of activities" are categorized into the uncategorized risk dimension. In total, there are 25 codes of risk perception found in the discussion. However, after careful evaluation and discussion among the authors, the FGDs finally reported 23 risk perception items that were categorized into 5 dimensions of risk perception. Meanwhile, two items (Health 5 and Psycho 5) were merged to avoid redundancy (see Table 2).

Table 2. Summary of Risk Perception Items Based on FGD.

No	Coding	Risk Items/Operationalization of Variables	Related Literature
1	Health 1	(R1) I feel worried about contracting the COVID-19 virus while staying at tourist accommodation during my trip in Indonesia	[4,37–39]
	Health 5		
2	Health 2	(R2) If I got infected by the COVID-19 virus while travelling to Indonesia, it will have a serious impact on my health	
3	Health 3	(R3) I will feel worried if I have to undergo self-isolation because I contracted COVID-19 while staying in tourist accommodation in Indonesia	
4	Health 4	(R4) I am worried that I will transmit the COVID-19 virus to my closest friends (friends/relatives/family/coworkers) after staying in tourist accommodation during that trip)	

Table 2. *Cont.*

No	Coding	Risk Items/Operationalization of Variables	Related Literature
5	Psycho 1	(R5) I still feel worried that I have to stay in tourist accommodation during my trip in Indonesia	[4,37–39]
	Psycho 5		
6	Psycho 2	(R6) I find it difficult to enjoy my stay in tourist accommodation in this transition period in Indonesia	
7	Psycho 3	(R7) I feel uncomfortable if I have to be in a public location (lobby, restaurant, swimming pool, garden, parking lot) in the tourist accommodation where I stayed	
8	Psycho 4	(R8) I feel uneasy if I have not checked the implementation of health protocols in the accommodation where I stayed	
9	Social 1	(R9) Because the threat of COVID-19 still exists, I am worried about what other people think when I stay in tourist accommodation on my trip	
10	Social 2	(R10) I am worried that if I stay at tourist accommodation on that trip, it will cause a conflict of opinion with my closest friends (friends/relatives/family/coworkers)	
11	Social 3	(R11) As much as possible, I will reduce direct interaction with other people while staying in tourist accommodation on that trip	
12	Social 4	(R12) I chose accommodation that is less crowded during my last trip in Indonesia	
13	Finance 1	(R13) In my opinion, staying at tourist accommodation on that trip cost more than before the COVID-19 pandemic	[4,17,40]
14	Finance 2	(R14) It cost more for me to choose the safest accommodation on that trip	
15	Finance 3	(R15) I prepared for unexpected expenses when I stayed in tourist accommodation on that trip	
16	Finance 4	(R16) I am worried that the benefits I receive while staying at the tourist accommodation during this transition period in Indonesia is not worth the money I spent	
17	Uncategorized 1	(R17) When staying at tourist accommodation during the trip, there is a possibility that I will lose potential additional income	[25,41,42]
18	Uncategorized 2	(R18) Due to the rules during the pandemic transition period, I cannot enjoy the various facilities at the tourist accommodation on this trip	
19	Uncategorized 3	(R19) Due to the pandemic situation, I have to make some backup plans so that I can have a memorable time on the trip	
20	Uncategorized 4	(R20) Travel regulations during this pandemic transition made my experience less memorable	
21	Uncategorized 5	(R21) I had to change my accommodation plan during the trip due to the changes in the government's regulations regarding COVID-19 prevention	
22	Uncategorized 6	(R22) The rapid changes in the regulation of COVID-19 prevention have affected my experience on this trip	
23	Uncategorized 7	(R23) Travel regulations during the COVID-19 pandemic in Indonesia made my stay on that trip less memorable	

3.2. Pilot Testing

Before conducting the main test, the authors conducted a pilot test to evaluate the reliability and validity of the research instrument. A pilot test refers to testing the questionnaire on a small sample of respondents to identify and eliminate potential problems. Ordinarily,

a sample for a pilot test is relatively small, between 15 and 30 respondents [32]. However, following a proposed formula for pilot studies [43], Viechtbauer suggests a straightforward formula to determine the sample size required to detect issues with a particular confidence level and a given probability. The proposed formula for a sample size in a pilot study is $n = [In (1 - \gamma)/In (1 - \pi)]$, where γ denotes the integer of the confidence level (0.90, 0.95, and 0.99), and π is the integer assumption of problem probability occurrence.

For example, if a problem exists with 5% probability, the problem will almost certainly be identified with 95% confidence in 59 respondents. Hence, the judgment of the problem that has occurred is based on the study context by the authors, including difficulties in understanding the items and the problem regarding the uncompleted choices of answers in the questionnaire. In this study, the authors assume that only 6 out of 100 total respondents have difficulty understanding the questionnaire. Thus, based on a 95% confidence level and 0.06 problem probability, the calculated minimum sample for the pilot study is 48 respondents. However, since the authors invited target respondents to participate in the survey through social media, 50 eligible respondents participated in our pilot study.

Reliability testing was conducted to evaluate the consistency of the items in the questionnaire, and all items show the Cronbach alpha value of 0.92, which indicates high reliability that passes the threshold value (0.6). Moreover, the authors also tested the reliability of each proposed dimension (based on FGD), which include health risk (0.83), financial risk (0.78), psychological risk (0.84), social risk (0.78), and uncategorized risk (0.81). All the dimensions also show high Cronbach alpha values, indicating that the questionnaire is reliable. Meanwhile, to test the validity, all the items have factor loadings above 0.5, which is greater than the threshold value [36]. Hence, the pilot testing confirmed the suitability of the item questionnaire to be used in the main test.

3.3. Socio-Demographic Profile of the Respondents in the Main Study

The main test in this study included 465 total respondents that participated in this survey through an online and offline questionnaire. However, after a detailed evaluation of each response, only 411 responses were accepted and could be further analyzed using factor analysis. Hence, this final number of respondents is sufficient according to the minimum sample size required for the study. The authors conducted reliability tests to ensure that the data was consistent. All items showed a Cronbach alpha value above 0.929, which is far above the threshold value. Hence, all the data were accepted for the next step of the analysis.

According to the data in Table 3 about the descriptive background of respondents, the total respondents included more female (63%) than male respondents (36%). The respondents were also mostly young adults aged 31–40 (42%) and 21–30 (38%). The data also show that the majority of travelers in Indonesia, especially in major tourist destinations such as Bali, Lombok, and Yogyakarta, is also dominated by young adults aged less than 40 years old. Hence, to better understand the age group, the authors purposively categorized the respondents into six age categories to provide better insight into the area of business in the tourism and hospitality sector. Moreover, based on previous a study, gender plays a significant role in moderating the effect between perceived risk and behavior intention [44].

Table 3. Socio-Demographic Profile of the Respondents.

Item Description	Category	Frequency (n = 411)	Percentage
Gender	Male	151	36.7%
	Female	260	63.3%

Table 3. *Cont.*

Item Description	Category	Frequency (*n* = 411)	Percentage
Age group	<20 years	7	1.7%
	21–30 years	157	38.2%
	31–40 years	174	42.3%
	41–50 years	46	11.2%
	51–60 years	20	4.9%
	>60 years	7	1.7%
Education level	High school and below	19	4.6%
	Diploma/academy	27	6.6%
	Bachelor's degree	220	53.5%
	Master's degree	134	32.6%
	Doctoral degree (PhD)	11	2.7%
COVID-19 vaccination status	Vaccination dose 1	3	0.7%
	Vaccination dose 2	69	16.8%
	Vaccination dose 3 (booster)	336	81.8%
	Not vaccinated	3	0.7%
Country of origin	Indonesia (domestic)	335	86.4%
	Asian countries (except Indonesia)	24	5.8%
	European countries	26	6.3%
	American countries	1	0.2%
	African countries	4	1%
	Australian and New Zealand	1	0.2%
Type of previous tourist accommodation	Hotel	286	69.6%
	Villa	59	14.4%
	Apartment	7	1.7%
	Homestay/hostel	44	10.7%
	Others	15	3.6%

Interestingly, most of the respondents stayed at hotels (69%), villas (14%) and homestays (10%), and the remaining 5% stayed at various types of accommodation, such as apartments, resorts, bungalows, and also glamourous camping sites in Indonesia. Regarding vaccination status, most respondents have been vaccinated and received three doses (booster) of a COVID-19 vaccine (81.8%), or two doses of a vaccine (16.8%).

3.4. Exploratory Factor Analysis

According to the research purpose, exploratory factor analysis was conducted. Factor analysis is a multivariate statistical method that identifies the matrix data that are too complex to distinguish [36,45]. Before running the factor analysis, the factorability of 23 items was examined using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy test and Bartlett's test of sphericity. The value of KMO in this study is 0.924, which is significantly higher than the recommended value of 0.6 [36]. Bartlett's test of sphericity was also statistically significant (*p* < 0.000) and supported the factorability of the rotated component matrix. A chi-square value of 5021.411 was also reported (*df* = 253). Hence, the final factor analysis could be performed.

When the data were extracted using the principal component analysis method, five components were observed with an eigenvalue more than 1.0 for Factor 1 (9.19), Factor 2 (2.1), Factor 3 (1.32), Factor 4 (1.22), and Factor 5 (1.09), respectively. In PCA, the statistical program calculates the eigenvalues and factor loadings (correlation) of each component variable. Eigenvalues are the sum of the squares of the loadings of all the variables under analysis. In travel and tourism literature, the latent root criterion is popularly used in determining the number of resulting components. This criterion considers only those components with eigenvalues of 1.0 or more [36,45]. Thus, a five-component (factors) solution is summarized in this study.

Another consideration in conducting factor analysis is the implementation of the rotation matrix that helps researchers to interpret the factors. Researchers can quickly "assign" specific variables to factors or components based on the number of loadings by using a Varimax rotational factor matrix [45]. The variables with the most significant loadings for each factor or component are then usually used by the researchers to create names or labels. In this study, the rotated component matrix with the varimax method shows only 22 items (out of 23) that achieve acceptable factor loadings above the cut-off point of 0.5. Although almost all of the risk items have factor loadings between 0.50 and 0.78, one item is not further included in the analysis because its factor loading is 0.4, below the cut-off point. Hence, the item *"(R17) When staying at tourist accommodation during the trip, there is a possibility that I will lose potential additional income"* is deleted and excluded from further analysis.

In the final step, the authors recheck the reliability of each component or resulting factors. The Cronbach alpha value of each component is tested for Factor 1 (0.86), Factor 2 (0.87), Factor 3 (0.82), Factor 4 (0.78), and Factor 5 (0.73), which all exceed the minimum threshold of 0.7. Hence, the five factor solutions can be concluded from the factor analysis. Then, the authors label each factor as follows: potential loss risk (Factor 1), psychological risk (Factor 2), health risk (Factor 3), social risk (Factor 4), and financial risk (Factor 5). The detailed statistical result is presented in Table 4.

Table 4. Summary of Exploratory Factor Analysis on Risk Perception Toward Post-COVID-19 Pandemic Period.

Factor Category	Risk Items	Eigen Values	Variance	Communalities	Factor Loading	Cronbach Alpha
Factor 1: Opportunityl Loss Risk	**(R18)** Due to the rules during the pandemic transition period, I cannot enjoy the various facilities at the tourist accommodation on that trip			0.531	0.555	
	(R20) Travel regulations during this pandemic transition made my experience less memorable			0.716	0.787	
	(R19) Due to the pandemic situation, I have to make some backup plans so that I can have a memorable time on the trip	9.199	39.9%	0.612	0.692	0.869
	(R21) I had to change my accommodation plan during the trip due to the changes in the government's regulations regarding COVID-19 prevention			0.672	0.768	
	(R22) The rapid changes in the regulation of COVID-19 prevention have affected my experience on this trip			0.622	0.715	
	(R23) Travel regulations during the COVID-19 pandemic in Indonesia made my stay on that trip less memorable			0.735	0.774	

Table 4. *Cont.*

Factor Category	Risk Items	Eigen Values	Variance	Communalities	Factor Loading	Cronbach Alpha
Factor 2:Psychological Risk	**(R5)** I still feel worried that I have to stay in tourist accommodation during this trip in Indonesia	2.107	9.1%	0.735	0.608	0.878
	(R6) I find it difficult to enjoy my stay in tourist accommodation in this transition period in Indonesia			0.711	0.713	
	(R7) I feel uncomfortable if I have to be in a public location (lobby, restaurant, swimming pool, garden, parking lot) in the tourist accommodation where I stayed			0.642	0.644	
	(R8) Because the threat of COVID-19 still exists, I am worried about what other people think when I stay at tourist accommodations on my trip			0.697	0.707	
	(R10) I am worried that if I stay at tourist accommodation on that trip, it will cause a conflict of opinion with my closest friends (friends/relatives/family/co-workers)			0.680	0.733	
Factor 3: Health Risk	**(R1)** I feel worried about contracting the COVID-19 virus while staying at tourist accommodation during my trip in Indonesia	1.325	5.7%	0.639	0.655	0.827
	(R2) If I got infected by the COVID-19 virus while travelling to Indonesia, it will have a serious impact on my health			0.671	0.760	
	(R3) I will feel worried if I have to undergo self-isolation because I contracted COVID-19 while staying in tourist accommodation in Indonesia			0.701	0.789	
	(R4) I am worried that I will transmit the COVID-19 virus to my closest friends (friends/relatives/family/co-workers) after staying in tourist accommodation during that trip			0.623	0.665	
Factor 4:Social Risk	**(R8)** I feel uneasy if I have not checked the implementation of health protocols in the accommodation where I stayed	1.221	5.3%	0.679	0.672	0.788
	(R11) As much as possible, I will reduce direct interaction with other people while staying in tourist accommodations on that trip			0.751	0.771	
	(R12) I chose accommodation that is less crowded during my last trip in Indonesia			0.578	0.667	
Factor 5:Financial Risk	**(R13)** In my opinion, staying at tourist accommodation on that trip cost more than before the COVID-19 pandemic	1.090	4.7%	0.691	0.746	0.739
	(R14) It cost more for me to choose the safest accommodation on that trip			0.686	0.736	
	(R15) I prepared for unexpected expenses when I stayed in tourist accommodation on that trip			0.577	0.624	
	(R16) I am worried that the benefits I receive while staying at the tourist accommodation during this transition period in Indonesia is not worth the money I spent			0.521	0.507	
	Total	14.942	64.9%			

3.4.1. Opportunity Loss Risk (Factor 1)

The highest variance (39.9%) in the factor analysis is component 1, which we called the "opportunity loss risk". This dimension of risk perception has the highest eigenvalue (9.199), and a high Cronbach alpha value (0.869). There are six items in this factor that are related to the potential loss that might be perceived by the tourist during their travel. All items in this factor present good factor loadings and communalities values between 0.5 and 0.7. Tourists thought that the regulations and some policies regarding COVID-19 prevention might influence their risk perception of staying at the accommodation. The highest value among the items is "Travel regulations during this pandemic transition made my experience less memorable", (R20) which has a loading factor of 0.787. Meanwhile, the lowest item value is "due to the rules during the pandemic transition period, I cannot enjoy the various facilities at the tourist accommodation on that trip" (R18), which has a loading factor of 0.555.

3.4.2. Psychological Risk (Factor 2)

We named our second risk dimension the "psychological risk" factor, which demonstrates 9.1% variance, eigenvalues of 2.107, and a Cronbach alpha value of 0.878. There are five items in this factor, and all the risk items are related to mental and psychological aspects, with good factor loadings and communalities between 0.6 and 0.7. The highest value with a 0.733 loading factor belongs to R10 "I am worried that if I stay at tourist accommodation on that trip, it will cause a conflict of opinion with my closest friends (friends/relatives/family/co-workers)." Meanwhile, the lowest loading factor (0.608) in this dimension is R5 "I still feel worried that I have to stay in tourist accommodation during my trip in Indonesia."

3.4.3. Health Risk (Factor 3)

Although the COVID-19 pandemic is related to health issues, our study found that in the current context of research, the health risk perception demonstrates the third highest variance after potential loss and psychological risk in the factor analysis. The health risk factor has 5.7% variance and eigenvalues of 1.325. Meanwhile, the Cronbach alpha value for this risk dimension is 0.827, which indicated good reliability. Thus, the factor loadings and communalities values ranged between 0.6 and0.7, which indicated a good loading factor. The highest loading value is "I will feel worried if I have to undergo self-isolation because I contracted COVID-19 while staying in tourist accommodation in Indonesia" (R3). Meanwhile, the lowest loading factor is "I feel worried about contracting the COVID-19 virus while staying at tourist accommodation during my trip in Indonesia" (R1).

3.4.4. Social Risk (Factor 4)

The next resulting factor from our analysis was the "Social Risk" which had a 5.3% total variance explained. The eigenvalues for this factor was 1.221 and the Cronbach alpha for the factor was 0.788 which performs good reliability. There are three items in this factor which has good loading factors (0.6–0.7) and sufficient communalities value (0.5–0.7). The highest loading factor with 0.771 was "As much as possible, I will reduce direct interaction with other people while staying in tourist accommodations on that trip" (R11). Meanwhile, the lowest loading factor was "I choose an accommodation that is less crowded during my last trip in Indonesia (R12)".

3.4.5. Financial Risk (Factor 5)

The last factor obtained our analysis is the "financial risk" factor, which has 4.7% variance. The eigenvalues for this factor are 1.090, and the Cronbach alpha value for the factor is 0.739. Four items are included in this factor dimension with a factor loading that ranges from 0.5 to 0.7. Meanwhile, the communalities value also ranged from 0.5 to 0.6. The highest loading factor is "In my opinion, staying at tourist accommodation on that trip cost more than before the COVID-19 pandemic" (R13). Meanwhile, the lowest loading factor is

"I am worried that the benefits I receive while staying at the tourist accommodation during this transition period in Indonesia are not worth the money I spent" (R16).

4. Discussion and Limitation

The findings demonstrates 22 measurement items that exhibit distinct findings from previous studies, such as the 13-item risk measurement model [4], the 10-item risk measurement model [46], and other multi-item measurement models [4,13,27]. The COVID-19 outbreak has had an impact on more than just health; hence, this study suggests 22 measurement items to examine how tourists perceive risk in this new normal era. Therefore, it is essential to consider the potential loss risk, as well as psychological, social, financial, and health risks.

This study also demonstrated that, given the COVID-19 pandemic's present circumstances, most tourists evaluated various risk concerns when arranging their travels in addition to the health risks. This discovery contradicts various academic assumptions about the direction of tourism after COVID-19. While the health risk factor is one risk dimension that is properly considered, this study contends that some other risk factors may have an influence on future travel behavior.

This work follows the conclusions of other research, including those on xenophobic tourism [47], the paradox of alterity in tourism [48], the use of technology services to avoid physical contexts [49–51] and how the pandemic has changed the tourism industry landscape [52,53]. Moreover, the findings also support the findings of previous studies on business recovery after the pandemic, such as the risk-coping mechanism of household-run businesses [54], online travel-agent business recovery [20], and also the strategic changes in the restaurant businesses [55]. Hence, the study validates a few of the risk factors and dimensions that were examined in the earlier literature review.

However, validating these measuring items in another study context will require additional research in the body of literature. One of the potential future research areas is the investigation into how well these risk dimensions predict travel behavior. On the other hand, the segmentation of tourists [40] depending on how they perceive risk might also become an intriguing area for further study. This discovery might also be beneficial for the tourism and hospitality sector's recovery plan in the post-pandemic era, especially in the context of the industry's sustainability [56]. Understanding how tourists perceive risk in their travel activities will determine how well the tourism and hospitality business will grow in accordance with the industry's sustainable environment. Fear of traveling might still exist. However, coping strategies among tourists and risk reduction strategies will help reduce the anxiety. These research findings are believed to be beneficial in the investigation of this concern among the stakeholders in the industry.

Nevertheless, the research analysis in this study still has several limitations. First, most of the respondents are still domestic visitors, making it harder to generalize the findings in a global context. Second, the study context was in a country in the early stage of the easing of the COVID-19 pandemic, where the health protocols were still mandatory. The findings might be different if the study is conducted in the free-mask-wearing policy countries, such as Europe and America.

5. Conclusions

The study of multi-dimensional risk perception in the post-pandemic era is still limited. Most risk perception studies in the COVID-19 pandemic era are dominated by the impact of health risk on purchase intention. However, the investigation of other risk dimensions remains limited. Thus, this study was developed to analyze the multi-dimensional risk perception in the current tourism and hospitality business recovery context after the COVID-19 pandemic. Through exploratory factor analysis, the study has explored various risk perception factors regarding staying at tourist accommodation during the ease of travel restrictions in Indonesia in the new normal era. Data collection was conducted through an online and offline survey of 411 domestic and foreign travelers from March to July

2022. The study concluded 22 risk items and categorized the items into 5 dimensions of risk perception.

The first dimension is opportunity loss risk, with a total of 39.9% variance and consists of six risk items. The second risk dimension is psychological risk, consisting of five items with a total of 9.1% variance. Health risk is our third dimension, consisting of four items with 5.7% total variance. The other dimensions are social risk (three items) with 5.3% variance and financial risk (four items) with 4.7% variance.

This study suggests the use of five dimensions to analyze tourist risk perception in the post-pandemic era more thoroughly than the previous study, which suggested one dimension for assessing risk perception toward COVID-19. According to the authors, a thorough investigation of risk perception in the post-pandemic era also requires a thorough analysis of measurement methodologies. Therefore, the single dimension measuring scale is insufficient to adequately reflect the sense of risk among tourists in the current pandemic scenario. The present studies must incorporate the use of multi-dimensional risk factors.

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