UNIVERSITAS INDONESIA

Tourism in Recovery:
Segmenting Tourists Based on Risk Perception in the Post-COVID-19 Pandemic in Indonesia

DISSERTATION

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**Pariwisata Dalam Pemulihan:
Segmentasi Turis Berdasarkan Persepsi Risiko Pasca Pandemi COVID-19
di Indonesia**

DISERTASI

Diajukan untuk memperoleh gelar Doktor Ilmu Manajemen

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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 mix-method analysis, the study explored various risk perception factors toward staying in tourist accommodation among tourists during the easing of travel restrictions in Indonesia. Focus groups discussion and field surveys of local and foreign tourists employed to gather mixed-method analysis data during March to July 2022. Five hundred sixty-eight tourists participated in the survey, whereas 11 tourists participated in the FGDs. For addressing the research questions, the study uses exploratory factor analysis, cluster analysis, ANOVA tests, cross-tabulation, structural equation model, and text mining analysis. The findings conclude that there are 21 risk perception items which categorized into five dimensions namely; Opportunity-loss risk (six items, 44% variance), Psychological risk (five items, 8.8% variance), Health risk (four items, 5.6% variance), Social risk (three items, 5.5% variance), and Financial risk (three items, 4.8% variance). Hierarchical and K-means cluster analysis are utilized to examine those risk perceptions further to construct tourist segmentation. Four cluster solutions demonstrating significant variances on risk perception among the cluster members. Based on their risk perception preference, those segments are labelled as *The Performer* (not perceiving any risk dimension), *The Valuator* (perceiving all risk factors especially opportunity-loss risk), *The Avoider* (perceiving socio-psychological risk), and *The Hesitator* (perceiving health risk factors). Several socio-demographic, travel-related behavior variables, and accommodation attributes are utilized to profile the resulting segments. Text mining analysis examines the guest review from online travel agency to profile segment preference toward accommodation attributes. Topic modelling method applies to categorize 11.500 tourist reviews into six accommodation attributes namely; *Hygiene factors, Check-in process, Accommodation location, Pool & breakfast, Service quality, and Accommodation facility*. Finally, our last analysis is the structural equation model to investigate the relationship between risk perception and loyalty behavior variables. Using fit as mediation concept, structural model confirms that risk perception has negative impact toward revisit and word of mouth intention through satisfaction as the mediating variable. This finding supports the research's main purpose to segment tourist based on their risk perception in the post-pandemic era. To the best of our knowledge, this study is the first research that segment tourist based on the multidimensional risk perception. Hence, this study also one of the few research on the tourist behavior in the current context of pandemic. Perhaps, the finding will contribute to the tourism and hospitality industry in developing the marketing strategy based on the proposed segmentation and tourist behavior in the post COVID-19 pandemic in Indonesia.

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CHAPTER 1: INTRODUCTION

1.1. Research Background

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 (Kapuściński & Richards, 2016). Hence, the need for studies on the perceived risk of tourism in the context of COVID-19 remains limited. 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 (Zhan et al., 2022). 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 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 tourists still perceive there to be any travel risks with respect to the current COVID-19 circumstances? This study aimed to investigate these research questions.

1.2. Research Questions

This study is aimed to investigate these following research questions:

1) What risk perception factors are perceived by Tourists in Indonesia during travel relaxation in the easing of COVID-19 pandemic? *(RQ1)*

2) What are the Tourists' preferred accommodation attributes in the post-COVID-19 pandemic? *(RQ2)*

3) What are the tourist segmentation in the post COVID-19 pandemic? What are their profile based on socio-demographic and travel behavior? *(RQ3)*

4) What are the relationship between Risk Perception (cluster variate) and behavior loyalty variables (marketing performance) in the context of hospitality in the post COVID-19 pandemic? *(RQ4)*

1.3. Research Gap and Novelty

This research fills the gap in the study of risk perception toward customer decision-making of staying at the tourist accommodation during the COVID-19 pandemic. By understanding the risk perception among tourists, tourism industry practitioners might develop the segmentation process and describe the profile of each segment by investigating the customer push motivations, preferred accommodation attributes, and their travel behavior. Hence, to our knowledge, this study is the first approach to segmenting tourists based on risk perception in the post-pandemic era.

1.3.1. The Gap in Investigating Multi-dimensional Risk Perception in the Hospitality Study

This study is one of the few papers on tourist's risk perception in the hospitality industry. To the best of our knowledge, this is the first study in segmenting travelers based on the risk perception through multidimensional approach. In the COVID-19 studies, most research investigate the variables' antecedents and outcomes (Godovykh et al., 2021). Meanwhile, this study focuses on using perceived risk as the cluster variates to create the segments.

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 is 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 toward staying at tourist accommodation during the ease of travel restriction in Indonesia in the new normal era.

Based on the literature review, the authors found several studies that propose factors of risk perception toward the COVID-19 pandemic with a single risk factor (Ertaş & Kırlar, 2022; Zenker et al., 2021), and other studies proposed multi-dimensional factors of risk perception (Chua et al., 2021; Zhan et al., 2022). Thus, most studies focus on the health risk factors in their investigation, and other factors are still not yet elaborated on sufficiently. The author also found a study that proposes a deeper analysis of tourist risk perception amidst the COVID-19 outbreak. That study investigated the risk perception among tourists to visit Wuhan after the COVID-19 outbreak and concluded 13 items of risk factors in four risk dimensions.

Hence, this study propose 21 items in five dimension of risk perception as the basis of the segmentation. The gap on the investigation of multidimensional risk perception toward post COVID-19 pandemic has been elaborated in this analysis. Thus, future research could develop this finding and argumentation in different study context and risk perspective.

1.3.2. *The Gap in Using Risk Perception as Segmentation Basis*

Studying tourist segmentation in the context of COVID-19 pandemic, the study of Sanchez-Perez et al (2021) is one of the few studies in clustering the tourist-based on risk-related COVID-19 variables. Their study provides novel evidence that the new approach linking health risk and tourist behavior could be applied as the new behavioral segmentation base (Sánchez-Pérez et al., 2021). Their study identified three segments of travelers with different decision-making approaches toward COVID-19. The first segment is called 'the true believer', which are those tourists who do not intend to change their tourism consumption and continue their traveling plan as usual. The second group is called 'cautious travelers' who will change their traditional travel patterns and adapt to the changes due to pandemics. Meanwhile, the third group is called 'prophets of doom' since they will change all their travel patterns as they see COVID-19 will affect their lives and travel behavior.

Another study on segmenting the tourist regarding the COVID-19 pandemic has been conducted by Adam et al. (2021) by investigating the role of tourist's emotional response toward the pandemic and its influence to travel intention. Based on the two-

step cluster analysis, the study creates three segments which called 'deeply depressed' (strong negative sentiment toward COVID-19 and future travel), 'depressed' (moderate negative sentiment), and 'phlegmatic' (in different positive and negative sentiment toward COVID-19 and future travels) (Adam et al., 2021).

In various approaches, both studies are some literatures on investigating the segmentation analysis based on the COVID-19 pandemic. While the first study uses health crisis response and travel behavior as the cluster variates, the second study uses emotional response as the cluster variate. Although both studies applied the segmentation analysis of tourists regarding the COVID-19 pandemic, the use of multidimensional risk perception as the cluster variate is still unexplored. Therefore, the author argues that this research gap could be further investigated in this study.

1.3.3. *The Gap on Accommodation Attribute Preferences in the Post-Pandemic Era*

Since early 2022 the occupancy rate of Indonesian hotel and accommodations has shown a positive growth rate and indicate the recovery of the hospitality industry due to the pandemic crisis. Due to this phenomenon, the author intended to investigate the preference of accommodation attributes among the tourist in the early 2022 since the COVID-19 is still might be threatening in Indonesia. The study is also aimed to validate the previous studies in the literature which predicted that tourist behavior will be changing after the pandemic, and most tourist will seek the hygiene-related attributes compared with conventional accommodation attributes in the accommodation.

In order to investigate the preferred accommodation attributes during the COVID-19 pandemic, the author will conduct a text mining method to gather and analyze the guest review and comments from hotel customers during the pandemic in Indonesia. Text mining is the process of extracting meaningful, nontrivial, and valuable information from unstructured text, including the various kind of text data on the internet, such as from website articles, customer reviews, and user comments from several channels. Thus, this study conducted based on the textual data that generated from guest review in a most popular online travel agent and validate the result in a cross-sectional study among the tourist in some popular destination in Indonesia.

CHAPTER 2: LITERATURE REVIEW

2.1. Risk Perception and Tourist Decision Making

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 (Dolnicar, 2005), 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 (Renner et al., 2015). Furthermore, since 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 (Bove & Benoit, 2020).

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 (Han et al., 2020). 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 (Björk & Kauppinen-Räisänen, 2013), peer-to-peer accommodation risk perception (Aruan & Felicia, 2019), and risk perception when booking a smart hotel (Xiaobing, 2020). 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 (Hasan et al., 2017). 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 (Quintal et al., 2010).

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 (Yıldırım & Güler, 2020). 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 (Zenker et al., 2021).

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.

2.2. Tourist Segmentation in the COVID-19 Pandemic

In studying tourist segmentation in the context of COVID-19, the study of Sanchez-Perez et al. (2021) is one of the few studies on clustering tourists based on risk-related COVID-19 variables. Their study provides novel evidence that the new approach linking health risk and tourist behavior could be applied as the new behavioral segmentation base (Sánchez-Pérez et al., 2021). Their study identified three segments of travelers with different decision-making approaches toward COVID-19. The first segment is called 'the true believer,' which are those tourists who do not intend to change their tourism

consumption and continue their traveling plan as usual. The second group is called 'cautious travelers' who will change their traditional travel patterns and adapt to the changes due to pandemics. Meanwhile, the third group is called 'prophets of doom' since they will change all their travel patterns as they see COVID-19 will affect their lives and travel behavior.

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2.3. Text Mining Analysis

Text mining obtains valuable, significant, and complex information from unstructured text. The practice of text mining, which has its roots in computer science literature, has been applied in marketing contexts, such as to research consumer preferences. One can use information from product reviews to predict hotel demand and gain insight into the market structure. Two phases comprise the text mining process: (1) Preprocessing and integrating unstructured data and (2) Statistical analysis of the preprocessed data to extract textual information (Hananto, 2016).

The source of text mining is from customer reviews on the websites and applications of online travel agencies. These reviews are a form of electronic word of mouth, a hot topic of discussion in the study of customer behavior. Electronic word of mouth (eWOM) refers to online reviews in which users who have used services freely describe or select ratings, which are seen as more trustworthy and objective than company-provided information. In contrast to general evaluations, the features of online reviews are

accessible 24 hours a day, enabling continuous information storage in text or photos. In addition to expanding coverage, information is disseminated quickly. Because they may be published and changed without being constrained by time or space, internet reviews tremendously impact service-enabled customers. Regardless of their financial objectives, clients who provide online reviews of their services do so with others in the online community (Kwon et al., 2021).

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│ Data Collection from│     │  Text Pre-processing│     │ Document-Term Matrix│
│  www.traveloka.com  │ ──► │(Filtering, Tokeniza-│ ──► │ and Topic Modeling  │
│  Scraped by Python  │     │ tion, Stemming,     │     │  with Latent        │
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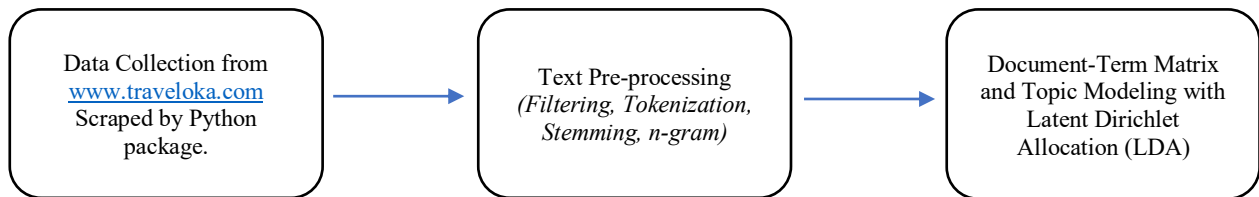
Figure 4.4. The Process of Text Mining Analysis

This study examines the text data into topic modeling, an unsupervised learning approach as an analysis to extract several topic or keywords in the whole text document or corpus. Unsupervised learning techniques look for hidden structure in data that has not been labeled. They can be applied to text data without manual effort because they don't require any training period. The two most widely utilized unsupervised learning methods in the context of text data are clustering and topic modeling. The objective of clustering is to divide a collection of documents into groups (clusters) where documents are more similar than those in other clusters. In topic modeling, a probabilistic model is used to define a soft clustering, as opposed to a hard clustering, in which each document has a probability distribution over all clusters. The expression of each document in topic models is expressed as a probability distribution over topics, and each topic can be represented as a probability distribution over words. As a result, a topic is similar to a cluster, and a document's participation in a topic is probabilistic (Allahyari et al., 2017).

2.4. Nomological Validity: Fit as Mediation in Structural Model

Since the study applies risk perception as the cluster variate, the following fit concept analysis is required to measure the relationship between the variables and marketing performance to validate the clustering process through a nomological framework. Nomological validity refers to the degree to which predictions in a formal theoretical network containing a construct of interest are confirmed. In this context, tourist

satisfaction, revisit intention, and word of mouth intention would be the dependent variables and risk perception as the predictor variable. Moreover, the study also validate the role of tourist satisfaction as the mediating variable between risk perception and behavior loyalty (revisit and word of mouth intention). If risk perception is significantly influence the tourist loyalty behavior, hence, the segmentation process will be more accurate in describing the clustered results.

A good fit between strategic components in marketing strategy is likely to affect performance. Internal consistency across subsystems within a firm (internal fit) and consistency among the organizational structure, strategy, and external environment (external fit) are investigated by researchers adopting a fit approach (external fit). The six viewpoints of fit identified by Venkatraman (1986) are fit as moderation, fit as mediation, fit as matching, fit as gestalts, fit as profile deviation, and fit as covariation. Each method carries significant theoretical implications and necessitates using particular analytic schemes.
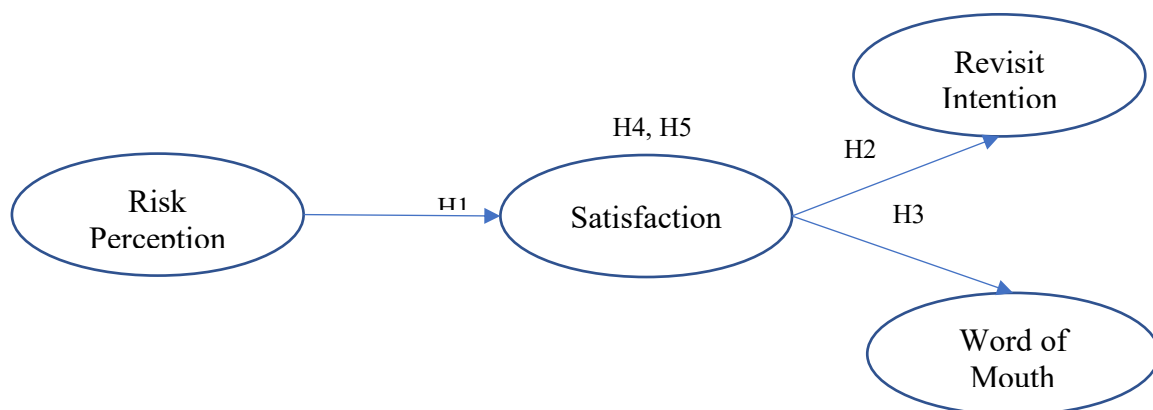
Figure 2.4. The Structural Model of Testing Fit as Mediation in the study

In this study, the author will analyze the concept of "fit as mediation" to validate and connect the segmentation basis (risk perception) to the business performance (loyalty behavior). Fit as mediation specifies a relevant mechanism intervening between the cause and effect variables. Hence, based on the classification proposed by Venkatraman (1989), the fit as mediation concept is suitable in examining the relations between the variables in this study. According to the choice of anchoring the fit-based relationship, the author argues that in this study, the concept of risk perception and loyalty behavior have been investigated in previous studies, such as the study on travel avoidance during the COVID-19 pandemic (Chua et al., 2021), and also the study on predicting the future travel behavior after the pandemic among the Canadian tourists (Law et al., 2022).

CHAPTER 3: RESEARCH FRAMEWORK

3.1. Segmentation Process

Following the literature on risk perception, Jarumaneerat's (2021) study has applied the perceived vulnerability and severity in his segmentation of international tourists in Thailand. However, his study investigated all risk perception categories as the construct variables, such as psychological, financial, communication, and health risks. Meanwhile, in this study, the author focuses the investigation on multidimensional risk perception as the basis of segmentation in the early stage of the post-pandemic era.

According to Wedel & Kamakura (2000), there will be two stages that researchers must follow in the segmentation process. The first stage is segment revelation, where the basis of segmentation must be decided. In this study, multidimensional risk perception in the context of ease of the COVID-19 pandemic is the base variable of this segment revelation. Meanwhile, the second step is the segment diagnoses which in this study will be explained by the socio-demographic variables, travel motivation, and risk reduction strategy.

Segment Revelation

In the tourism and hospitality study, there are more studies on an a priori segmentation approach than a post hoc segmentation approach (Guillet et al., 2015). This study applies the post-hoc segmentation approach, where the number of segments is unknown before the analysis. The post-hoc method partitioning the number of clusters based on the cluster variates focuses on the benefit sought by the customers. In this study, the post-hoc segmentation approach is applied to measure the number of segments of hotel customers regarding their risk perception toward COVID-19. Based on the framework of this study, there will be four different studies conducted to answer the research questions. The first study analyzes the tourists' risk perception. The focus group discussion and exploratory factor analysis will be conducted to answer the first research question in the study. The final dimension of risk perception as the segmentation basis will be determined after conducting exploratory factor analysis.

Segment Profiling

Meanwhile, our second study is the investigation of accommodation attributes preferred by the customer during the COVID-19 pandemic. Although this topic is neither part of segment revelation nor the segmentation basis, the study on accommodation attributes will be beneficial in profiling the resultant segment after the segmentation revelation process is completed. However, since the set of accommodation attributes will be needed in the research questionnaire, study 2 will be conducted after the first stage of the research process.

During the segment revelation process, a survey of travelers who stayed at the tourist accommodation during the COVID-19 pandemic will be conducted. Respondents will be asked to assess their perception of the risks perception on staying at the tourist accommodation. The variables will be measured using the multidimensional risk perception as the cluster variates. Study 3 is the main analysis to segment the tourist based on the risk perception dimension. And then, finally study 4 will profile the cluster through several profiling variables.
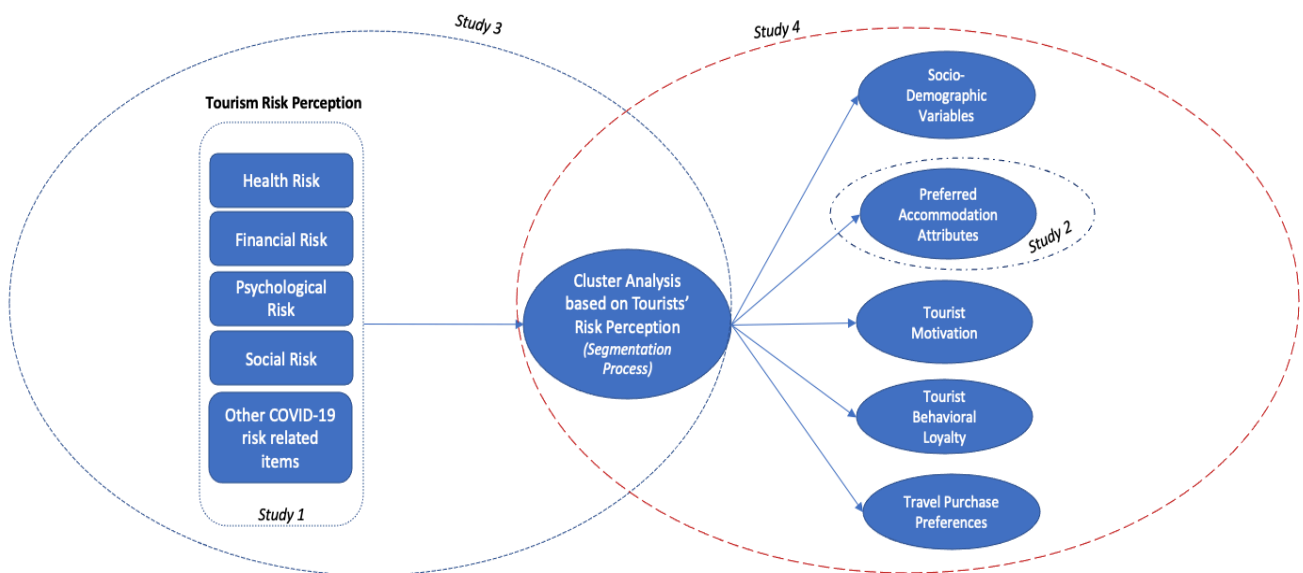
Figure 3.1. Research Framework
Source: Author's own elaboration

3.2. Research Process

This study aims to segment the tourist whom purchase and experience hotel and tourist accommodation stays during the early COVID-19 relaxation in Indonesia. Since the study aims to explore the new approach to partitioning customers into several groups based on their homogenous characteristics, this study is categorized as exploratory research. According to Malhotra & Birks (2007), the main objective of exploratory research is to provide insights and understanding of marketing phenomena in a target market. Exploratory research is also used to define the problem more precisely, identify relevant courses of action, or gain additional insights before confirming the findings using a conclusive design (Malhotra & Birks, 2007).

However, to describe the character of each resultant segment, this study will also use the descriptive statistical technique to measure the differences among the customers. Once the clustered groups have resulted through segmentation processes, the author aims to investigate the relations between cluster variates and the profiling variables and seek the differences in customer characteristics between the clustered groups variables related to COVID-19 pandemic.
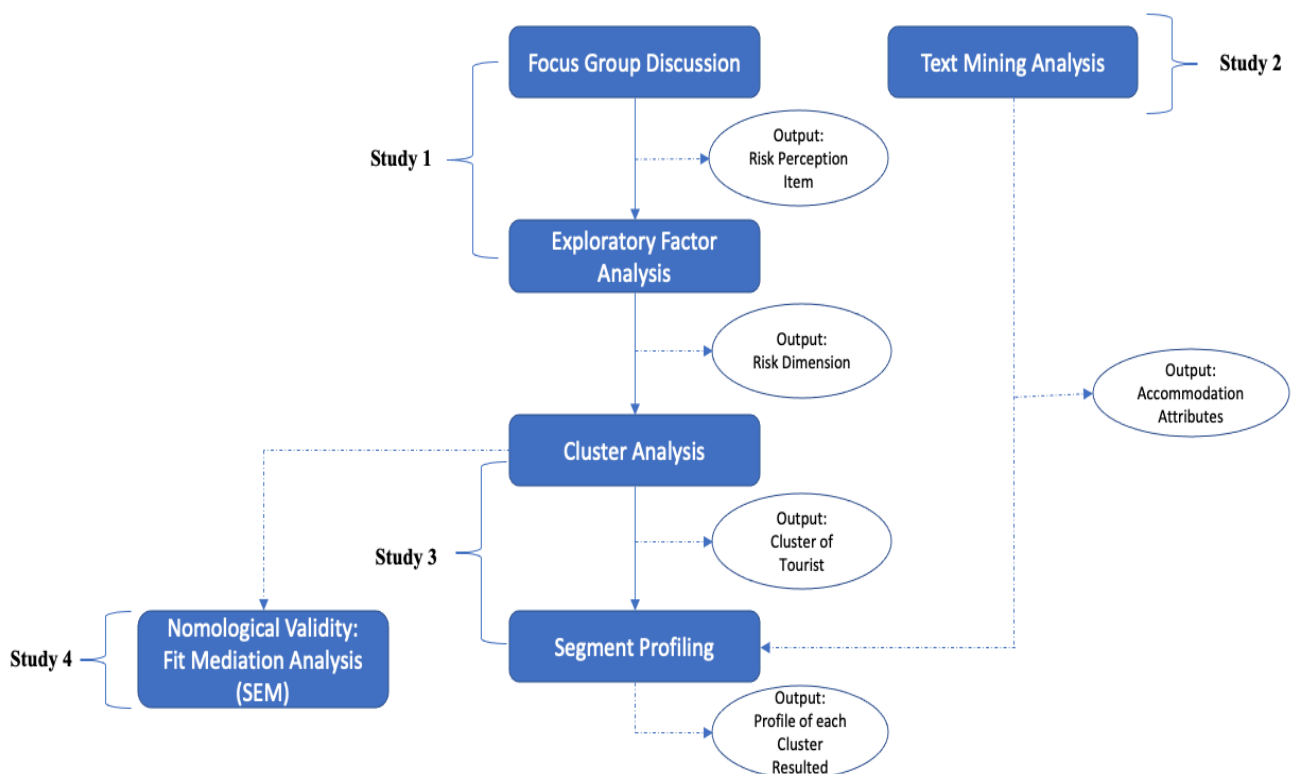
Figure 3.2. Research Process
Source: Author's own elaboration

CHAPTER 4: RESEARCH METHODOLOGY

This study conducted a mix-method approach to the analysis. The qualitative method used to investigate the risk perception items through focus group discussion (FGD) among travelers in Indonesia. A text mining analysis also conducted as the exploratory study to investigate the accommodation attributes preferred among the tourist. Meanwhile, a quantitative approach used through a cross-sectional study by surveying travelers who visited tourist destinations in Indonesia during the ease of COVID-19 pandemic (March – July 2022). Five hundred target respondents were decided according to the minimum sample required in the segmentation study (Dolnicar et al., 2014). Hierarchical cluster analysis results clustered group among the target customers.

Furthermore, the resultant segments will be characterized by several descriptive analyses between profiling variables and the clustered groups. The author conducts ANOVA and chi-square test to profile resulted segments in this study. Meanwhile, a structural equation model investigate the relationship between risk perception (as cluster variate) and the loyalty behavior variables (as the marketing performance) to test the fit concept between those variables as the nomological validity in this study. This research divided into four different studies; Focus Group Discussion and Exploratory Factor Analysis (Study 1), Text Mining Analysis (Study 2), Cluster Analysis, ANOVA, and Cross-tabulation (Study 3), and Structural Equation Model (Study 4).

4.1. Study 1: Risk Perception Exploration (FGD and EFA)

Study 1 consist of two methods, focus group discussion (FGD) and exploratory factor analysis (EFA). First, qualitative approach is conducted to elaborate the risk perception items among the tourist in the current context of the research. Then, the quantitative approach follows the analysis by conducting exploratory factor analysis. In this study, the author conducts focus group discussion (FGD) as one of the qualitative approach. FGD is aimed to elaborate the risk perception factors in the current context of early post-pandemic era.

This qualitative study is initiated by observing the domestic tourism and hospitality phenomenon in Indonesia during the COVID-19. The author is willing to investigate the travel risk perception among the domestic tourists since those tourists kept traveling under the health crisis during the pandemic. Hence, the preparation phase is implemented to

develop the research idea and questions. Before collecting data, the author develops the study protocol as the guidance in the research activities.

Hence, judgemental sampling is implemented to collected the informants for the FGD. Those informants are tourist who travel and staying at a tourist accommodation in a destination within Indonesia. The FGD will be conducted through online video meeting to provide easier access for the informants in the study. For an appreciation of their participation, a souvenir as token of appreciation will be delivered to the participants. Each FGD planned to be conducted for 60 – 90 minutes, including introduction, building rapport, conclusion, and documentation. Before conducting the FGD, the author prepares the FGD protocol to guide the discussion. The discussion has three main questions regarding the informant's experience of travelling during the ease of pandemic and their perception of the risk of staying at tourist accommodations during their trip.

Regarding the second data analysis method, this study conducts exploratory factor analysis (EFA) to investigate the risk perception among travelers in the ease of COVID-19 cases in Indonesia. As an interdependent approach, factor analysis is significantly more affected by failing to meet its underlying conceptual assumptions than by failing to meet its statistical assumptions. The researcher must fully comprehend the ramifications of ensuring that the data meet the statistical requirements for an accurate estimation of the factor structure and ensuring that the set of variables has the conceptual underpinning to support the results. Before doing a factor analysis, a solid conceptual foundation must support the premise that a structure exists. A statistically significant Bartlett's test of sphericity (sig. <0.05) suggests that the correlations between the variables are sufficient to proceed. The measure of sampling adequacy (MSA) values must exceed 0.50 for the overall test and each variable; variables with MSA values below 0.50 must be eliminated from the factor analysis one at a time, starting with the smallest (Hair et al., 2014).

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 could increase the efficiency in resulting small dimension. Meanwhile, the rotation method in analyzing the factors uses orthogonal varimax rotation, which is also commonly used among scholars. Orthogonal rotation could produce uncorrelated factors better rather than the oblique rotation method (Hair et al., 2014). Hence, varimax orthogonal is applied in this study to produce a more straightforward interpretation of the resulting factors.

4.2. Study 2: Text-Mining Analysis for Accommodation Attributes

This study collects hotel guest comments in the Traveloka Web from the various accommodation types as the sample size. According to the research question and the purpose of the analysis, the guest comments that will be scrapped in this study only focus on the textual comment without including other data such as overall rating, the purpose of visit, pictures, and the guest profile. The following figure will show the sample of guest comments on the Traveloka website on each hotel's page.

This study collected user reviews from Traveloka.com, a well-known Indonesian online travel agency. An independent data miner was employed to extract the guest reviews required for the investigation. The top 10 most visited tourist destinations in Indonesia were the authors' primary focus when collecting data for the study. To focus the analysis, only guest reviews (in Bahasa Indonesia language) published on the Traveloka website between January to March 2022 will be included. This period marks the beginning of Indonesia's relaxation of travel restrictions following the third wave of the COVID-19 pandemic.

The collected data was processed into a corpus (a CSV file) and then entered into the Orange3 text mining application by the authors. Applying text preprocessing is the initial stage in the data analysis process. The preprocessing separates the text into smaller units (tokens), filters it (converting all words to lowercase, eliminating accents, and also removing numbers), and performs normalization on it (stemming the words to their roots). Clean data from the corpus are then transferred using the Term Frequency-Inverse Document Frequency (TF-IDF) method to the document-term matrix. The Word-cloud widget is another tool the authors use to describe the number of frequently occurring terms in the data. Finally, LDA analysis was used to identify the pertinent corpus topics. The word frequency in each topic's results was also chosen to be described using the LDAvis widget.

4.3. Study 3: Segmentation Process and Profiling

There are two different processes before conducting hierarchical cluster analysis in the segmentation process in this study. In the first step, the author validates the FGD results 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 (severe to COVID-19, susceptibility to the disease, self-isolation, and quarantine) from all previous publications are categorized into 'Health-related Factors' code. Thus, this risk category will be discussed among the FGD participants to validate the items toward the current condition of easing the COVID-19 outbreak. Then 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.

Meanwhile, for the main test, data was collected online and printed questionnaires for domestic and foreign tourists staying at tourist accommodations in Indonesia. There are three sections in the questionnaire, which are 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 of the ease of COVID-19 cases in Indonesia, 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.

Hierarchical Cluster Analysis is conducted to determine the appropriate number of segments through an agglomerative dendrogram. After conducting EFA, the authors continued the investigation by implementing Cluster Analysis to result in the segments. According to Hair et al. (2014), the final cluster should be determined by seeking the significant changes in the coefficient values in the agglomerative schedule in each clustering step. Split sample analysis should also be implemented to test the validity of cluster results. If the resulting clusters show a similar number to the complete sample analysis, the resulting cluster could be accepted (Hair et al., 2014).

Once the hierarchical analysis results in the number of clusters based on the dendrogram, the non-hierarchical cluster analysis (K-Means) will also be conducted in the study, and the total cluster number from the hierarchical will be tested in the K-means analysis to investigate the member on each cluster. Then, based on the final cluster result in this step, several ANOVA and Chi-Square tests will also be conducted to profile the segments based on socio-demography and travel behavior variables. SPSS 25 is used as the statistical software for the entire analysis in this study.

4.4. Study 4: Testing Fit as Mediation in the Structural Model

Furthermore, for final analysis on fit testing analysis, the author will conduct a structural equation model (SEM) between risk perception, satisfaction, revisit intention, and word of mouth intention. This Structural Model analysis will validate the previous finding regarding the impact of risk perception toward behavior loyalty. This finding will enhance the segmentation results to strengthen the implacability towards theoretical and practical contribution of the study. Although this research model is not a main purpose of the study, hence, the finding of SEM analysis will also fill the gap in the literature, such as the study on multidimensional risk perception toward satisfaction, and also the mediation effect of satisfaction between risk perception and behavioral loyalty. This model is an approach to implement the fit as mediation in the fit process in analyzing this segmentation study. This study is aimed to investigate the role of risk perception on influencing the satisfaction and other loyalty behavior. Thus, SEM with mediation investigation will be conducted to analyse the research model.

4.5. Item Measurement and Implementation

The author summarized several risk items from previous publications based on the literature review. Hence, all risk items were validated through two FGDs to seek relevance to the current study context. The final risk items will be developed into a research questionnaire to be operationalized in the field survey. All risk items in the study are measured with five Likert Scale *(1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).* Meanwhile, several socio-demographic variables and travel-related behavior are investigated to profile the resulting segments. In tourism and hospitality studies, the impact of socio-demography variables has been researched among the scholars, such as the differences in health risk perception between groups of age and gender in Korea (Y. H. Kim et al., 2018), and the relations of social status toward the hotel purchase behavior among the customer (Khoo-Lattimore & Prayag, 2015). In another research on risk perception, Jarumaneerat (2021) applied seven socio-demographic variables in their study. Those variables consist of Age group, Gender, Nationality, Marital status, Occupation, Education level, and Monthly income. However, only age and gender significantly differ among the resulting clusters (Jarumaneerat, 2021).

In this study, the authors assess seven socio-demographic variables, which are gender, age group, educational background, monthly expenses, nationality, COVID-19 vaccination status, and comorbidity status. Meanwhile, regarding travel-related behavior, the study assessed seven variables: staying motivation, trip member category, travel style, length of stay, booking preferences, the reason for booking, and accommodation preferences. Those variables will enhance the understanding of the profile in each resulting segment in the study. Meanwhile, to investigate the loyalty behavior among the respondents, the author measures the latent variabel of satisfaction, revisit intention, and word of mouth with three measurement items on each variable respectively. All latent variables are measured with five scale likert *(1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).*

The study's primary purpose is to investigate the tourist risk perception of staying at tourist accommodation in Indonesia's context of ease of COVID-19 cases. Hence, the target respondents of the study are those tourists who travel to Indonesia during March – July 2022 and stay at tourist accommodation (hotel, villa, resort, homestay, apartment, and others) on that trip.

CHAPTER 5: RESULTS AND ANALYSIS

5.1. Study 1: FGD and EFA for Risk Perception Factors

Study 1 is aimed to answer research question 1 regarding the exploration of multidimensional risk perception. There are two approaches in this study, Focus Group Discussion (FGD) and Exploratory Factor Analysis (EFA). First, FGD is conducted to explore the current context of risk perception. Hence, after the FGD exploration on risk perception items, the EFA is conducted to validate the factors quantitatively.

The FGD involved eleven participants in two different sessions. The participants are consisted of various ages, gender, profession, and travel style. All participants have confirmed that they have travelled for the past six months according to the FGD protocol. The FGD began with the introduction of each participant, led by the first author as a facilitator. After making introductions, the facilitator explains the mechanism of the discussion. The discussion was divided into three sections according to the three FGD questions. Each session runs for approximately 25 minutes, with a total duration of 75 minutes.

Regarding Validity dan Reliability of the informants responses, this research implemented several validity dan reliability approaches. Construct validity is the degree to which inference can be made from operationalization in the research study to the theoretical constructs on which these operationalizations were based (Miles & Huberman, 2012). Meanwhile, reliability is the consistency with which instances are assigned to the same category by different or the same observers on different occasions. Thus, reliability has to do with the quality of measurement. In this ordinary sense, reliability is the consistency or repeatability of the measures (Wahyuni, 2019). We can use at least two tools to ensure the reliability of qualitative research. First is the inter-rater or inter-observer reliability which different raters or observers give consistent estimates of the same phenomenon.

An independent administrator is recruited to transcribe the FGDs and identified the keywords and codes of each topic discussion. Hence, the final topic category is summarized to be further developed into risk perception item measurement. Since the code and categorization in the FGD has been finished, the author finalized the category into risk perception items that will be the basis of the questionnaire. Hence, to create the item statement for the questionnaire, the author compared FGD results with the risk perception

items from the literature review. Hence, item statement is created for the construct measurement in the main study.

The FGDs concluded 23 risk perception items in this study, as stated in Table 5.3 (two items have been merged to avoid redundancy). As a result, in this stage, all risk items are developed into construct measurement to be further investigated in the field study through a questionnaire.

Table 5.1. Item Development of Risk Perception Factors

No	Item Code from FGD	Risk Item Measurement
1	Risk 1 Risk 5	(R1) I feel worried about contracting the COVID-19 virus while staying at tourist accommodation during my trip in Indonesia
2	Risk 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	Risk 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	Risk 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)
5	Risk 6 Risk 7	(R5) I still feel worried that I have to stay in tourist accommodation during my trip in Indonesia
6	Risk 8	(R6) I find it difficult to enjoy my stay in tourist accommodation in this transition period in Indonesia
7	Risk 9	(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	Risk 10	(R8) I feel uneasy if I have not checked the implementation of health protocols in the accommodation where I stayed
9	Risk 11	(R9) Because the threat of COVID-19 is still exist, I'm worried about what other people think when I stay at tourist accommodations on my trip
10	Risk 12	(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	Risk 13	(R11) As much as possible, I will reduce direct interaction with other people while staying in tourist accommodation on that trip
12	Risk 14	(R12) I chose accommodation that is less crowded during my last trip in Indonesia
13	Risk 15	(R13) In my opinion, staying at tourist accommodation on that trip cost more than before the COVID-19 pandemic
14	Risk 16	(R14) It cost more for me to choose the safest accommodation on that trip
15	Risk 17	(R15) I prepared for unexpected expenses when I stayed in tourist accommodation on that trip

16	Risk 18	(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	Risk 19	(R17) When staying at tourist accommodation during the trip, there is a possibility that I will lose potential additional income
18	Risk 20	(R18) Due to the rules during the pandemic transition period, I cannot enjoy the various facilities at the tourist accommodation on this trip
19	Risk 21	(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	Risk 22	(R20) Travel regulations during this pandemic transition made my experience less memorable
21	Risk 23	(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	Risk 24	(R22) The rapid changes in the regulation of COVID-19 prevention have affected my experience on this trip
23	Risk 25	(R23) Travel regulations during the COVID-19 pandemic in Indonesia made my stay on that trip less memorable

The second analysis in this study is conducted by implementing Exploratory Factor Analysis (EFA) to validate the risk dimension in the study. This study gathered 568 respondents who completed the survey online and offline. However, after a comprehensive review of each response, only 514 replies are accepted and are eligible for further cluster analysis. To ensure the data's consistency, the author undertakes reliability tests. All items have a Cronbach Alpha score greater than 0.929, which surpasses the minimum criteria. Therefore, all the data are approved for the subsequent analysis phase.

Based on the Principal Component Analysis with Varimax rotation method, the results suggest five factors solution with eigenvalues greater than 1 with a total variance explained 66.7%. The value of Kaiser-Meyer-Olkin (KMO) is 0.93, which indicates sampling adequacy for the factor analysis. Hence, the Cronbach Alpha value for all items is 0.939, indicating good reliability for the risk dimensions. However, after checking the factor loading on each item, two items (codes R16 and R17) have loading values below 0.5. Hence, the authors conduct a second-factor analysis after deleting both items. Based on the factor analysis of 21 remaining items, five factors solution are also suggested from PCA, which have eigenvalues greater than 1. The variance explained is increasing to 68.9%, without changing the KMO and Cronbach Alpha values.

When the data is extracted using the Principal Component Analysis method, five components are observed with an eigenvalue more than 1.0 respectively for Factor 1 (9.19), Factor 2 (2.1), Factor 3 (1.32), Factor 4 (1.22), and Factor 5 (1.09). In PCA, the statistical program calculates the eigenvalues and factor loading (correlation) of each component variable. Eigenvalues are the sum of the squares of the loadings of all variables being analyzed. In many travel and tourism literature, the latent root criterion is popularly used in determining the number of resulting components. That criterion considers only those components with eigenvalues of 1.0 or more (Frochot & Morrison, 2000; Hair et al., 2014). Thus, five components (factors) solution might be summarized in this study.

Table 5.2. Result of Exploratory Factor Analysis

Factor Category	Risk Items	Eigen-values	Var Exp.	Communalities	Factor Loading	Cronbach Alpha
Factor 1: *Opportunity-Loss*	**(R18)** Due to the rules during the pandemic transition period, I cannot enjoy the various facilities at the tourist accommodation on this trip	9.241	44%	.531	.585	.883
	(R20) Travel regulations during this pandemic transition made my stay experience less memorable			.716	.787	
	(R19) Due to the pandemic situation, I have to make some backup plans so that I can have a memorable stay on the trip			.612	.712	
	(R21) I had to change my accommodation plan during the trip due to the changes in the government's regulation toward COVID-19 prevention			.672	.748	
	(R22) The rapid changes in the regulation of COVID-19 prevention have affected my stay experience on this trip			.622	.725	
	(R23) Travel regulations during the COVID-19 pandemic in Indonesia made my stay on that trip less memorable			.735	.778	
Factor 2: *Psychological Risk*	**(R5)** I still feel worried when I have to stay at tourist accommodations during that trip in Indonesia	1.862	8.8%	.735	.639	.891
	(R6) I find it difficult to enjoy my stay at tourist accommodations in this transition period in Indonesia			.711	.724	
	(R7) I feel uncomfortable if I have to be in a public location (lobby, restaurant, swimming pool, garden, parking) in the tourist accommodation where I stayed			.642	.687	
	(R9) Since the threat of COVID-19 is still exist, I'm worried about what other people think when I stay at tourist accommodations on that trip			.697	.679	
	(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)			.680	.694	
Factor 3: *Health Risk*	**(R1)** I feel worried about contracting the COVID-19 virus while staying at tourist accommodation during that trip in Indonesia	1.189	5.6%	.639	.595	.844

	(R2) If I got infected by the COVID-19 virus while travelling to Indonesia, it will have a serious impact on my health			.671	.785	
	(R3) I feel worried if I have to undergo self-isolation because I contracted COVID-19 while staying at the tourist accommodation in Indonesia			.701	.800	
	(R4) I am worried that I will transmit the COVID-19 virus to my closest friends (friends/relatives/family/co-workers) after staying at tourist accommodation during that trip			.623	.715	
Factor 4: *Social Risk*	**(R8)** I feel uneasy if I haven't checked the implementation of health protocols in the accommodation where I stayed	1.170	5.5%	.679	.678	.793
	(R11) As many as possible, I will reduce direct interaction with other people while staying at tourist accommodations on that trip			.751	.781	
	(R12) I chose an accommodation that was less crowded during my last trip in Indonesia			.578	.684	
Factor 5: *Financial Risk*	**(R13)** In my opinion, staying at tourist accommodations on that trip costs more than before the COVID-19 pandemic	1.021	4.8%	.691	.769	.700
	(R14) It costed me more to choose the safest accommodation on that trip			.686	.773	
	(R15) I prepared unexpected expenses for a sudden need when I stayed at tourist accommodations on that trip			.577	.601	
	Total	**14.483**	**68.9%**			

5.2. Study 2: Text Mining for Accommodation Attributes Exploration

The study scrapped 11.500 guest reviews from Traveloka website during January - March 2022. Those reviews are originally from 676 accommodations (hotel, hostel, villa, apartment, resort, and others) in ten most popular destination in Indonesia during the relaxation of travel restriction in the COVID-19 pandemic. All collected data were being preprocessed in Orange3 text mining apps to clean the data. Then, frequency analysis was being interpreted. The authors collect 100 most frequent keyword in the data. Based on data of frequency analysis, the words 'Hotel', 'Kamar' (room), 'Bersih' (clean), 'Ramah' (friendly), and 'Layan' (service) are the top five most frequent keywords in the corpus. Those keywords describe the importance of attributes in the accommodations, dominated by the words related to clean rooms and friendly services from the staff. These keywords are also supporting the previous study, which summarized that the most influential attributes among travelers in the accommodations are the service quality (Oltean & Gabor, 2020), cleanliness of the accommodations (Maulana et al., 2020), and also the friendliness of the staff (Qu et al., 2000). Hence the frequency analysis is insufficient to conclude the

accommodation attributes in this study. Thus, topic modelling is required to summarize the topic among the keywords for further analysis.

Our main analysis in this study is to conduct the topic modeling through Latent Dirichlet Allocation (LDA) method. LDA requires parameter input even if it is an unsupervised approach. The number of subjects the user specifies is the most important parameter that LDA must have. LDA assumes that each topic in a group of documents (such as reviews) has numerous terms. LDA can identify the connections between words and place them inside the appropriate subjects. However, LDA cannot automatically predict the number of subjects in a collection or dataset. Therefore, before running the LDA analysis, it is necessary to determine the ideal number of topics and specify it as a parameter. There is currently no one methodology or method that researchers have all agreed upon for extracting various topics (Kiatkawsin et al., 2020). Hence, based on the interpretability of the resulted topics, the authors decide to conclude the analysis with the 6 topics since the interpretability is more understandable in this model. Thus, the detail of those 6 topics is further analyzed with the LDAvis widget to explore the keywords in each topic and to explore the highest value of the keywords within the topics.
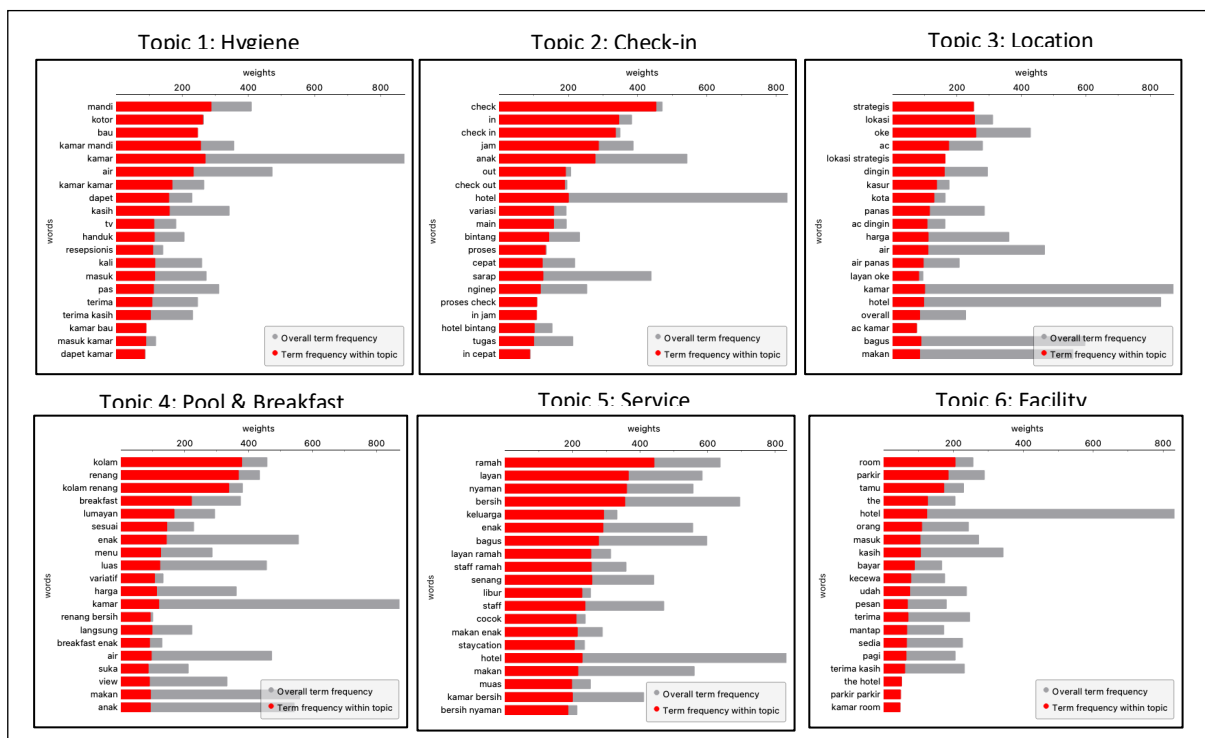

Figure 5.1. LDAvis Visualization of Each Resulted Topics

Although the study has concluded seven accommodation attributes in the analysis, this finding strengthens the previous literature regarding accommodation attributes that influence tourist decision-making. During the COVID-19 pandemic, hotel attributes preferences might be changed and influence future travel behaviour (J. J. Kim et al., 2021). This study also validates the importance of hygiene-related attributes in accommodations, which is a priority consideration among travelers in the post-pandemic era. Several studies also proposed that hygiene-related attributes dominate tourist preferences in accommodation selection in the new normal era after the pandemic (Maulana et al., 2020; Yu et al., 2021). Hence, conventional attributes such as location, service quality, and accommodation facilities are the major attributes investigated in tourism and hospitality studies (Masiero et al., 2019; O'Connor, 2010; Qu et al., 2000; K. K. F. Wong & Chi-Yung, 2002). However, this study also validates some other attributes that are less elaborated in previous literature, such as the check-in process and room view. Those two attributes also become a major concern among travelers in choosing their accommodation in Indonesia.

5.3. Study 3: Segmentation Process

Description of the Respondents

The main test in this study collected 568 total respondents that participated in this survey through an online and offline questionnaire. However, after a detailed evaluation of each response, only 514 responses are accepted and could be further analyzed into a cluster analysis. Hence, this final number of respondents is sufficient according to the minimum sample required for the study. The authors conduct reliability tests to make sure the data is consistent. All items show Cronbach Alpha above 0.929 which is far above the threshold value. Hence all the data are accepted for the next step of the analysis.

According to data in Table 5.3 about the descriptive background, the total respondents are dominated by females (62%) compared to male respondents (37%). The respondents are also dominated by young adults aged 31-40 (41%) and 21-30 (38%). It also describes that majority of the travelers in Indonesia, especially in major tourist destinations such as Bali, Lombok, and Yogyakarta, are also dominated by young adults aged less than 40 years old. Hence, to better understand the age group, the authors purposively categorize the respondents into six age categories to provide better insight into the business practitioner in the tourism and hospitality sector. Moreover, based on a study,

gender has significant roles in moderating effect between perceived risk and behavior intention (Gao & Chen, 2022).

Table 5.3. Descriptive Data of the Respondents

Item Description	Category	Frequency *(n: 514)*	Percentage
Gender	Male	194	37.7%
	Female	320	62.3%
Age Category	< 20 years	8	1.6%
	21 - 30 Years	194	37.7%
	31 - 40 Years	212	41.2%
	41 - 50 Years	67	13%
	51 - 60 Years	26	5.1%
	> 60 Years	7	1.4%
Education Level	High School and Below	24	4.7%
	Diploma/Academy	38	7.4%
	Bachelor Degree	224	55.3%
	Master Degree	152	29.6%
	Doctoral Degree (PhD)	16	3.1%
COVID-19 Vaccination Status	Vaccination Dose 1	3	0.6%
	Vaccination Dose 2	81	15.8%
	Vaccination Dose 3 (booster)	427	83.1%
	Not Vaccinated	3	0.6%
Country of Origin	Indonesia (Domestic)	411	80%
	Asia countries (except Indonesia)	28	5.4%
	European Countries	55	10.7%
	American Countries	8	1.6%
	African Countries	7	1.4%
	Australia and New Zealand	5	1.0%
Type of Tourist Accommodation	Hotel	357	69.5%
	Villa	74	14.4%
	Apartment	10	1.9%
	Homestay/Hostel	53	10.3%
	Others	20	3.7%

Interestingly, most respondents are staying at hotels (69%), villas (14%), Homestay (10%), and 5% others are staying at various types of accommodation such as apartments, resorts, bungalows, and also glamour camping in Indonesia. Regarding the vaccination status, most respondents have been vaccinated for three doses (booster) of COVID-19 vaccination (81.8%), and two doses of vaccination (16.8%). Meanwhile, regarding respondents nationality and country of origin, most respondents are domestic tourist (Indonesian), and some others are coming from European countries (10.7%) such as France, Britain, Spain, Sweden, and others. Other respondents are coming from Asian countries (5.4%) such as India, Singapore, Korea, Malaysia, and others. Meanwhile, some

other respondents are coming from American Continent (1.6%), African countries (1.4%), and Australia (1%).

Segment Revelation: Cluster Analysis Methods

After conducting factor analysis to categorize the risk items into several risk dimensions, the following analysis in this study is hierarchical cluster analysis. Five dimensions of Risk Factors are used as Cluster Variate in this process. Thus, before conducting cluster analysis, the author investigate the multicollinearity test among the variates. The multicollinearity issue was examined using variance inflation factors (VIFs). Those five factors have VIF values below the cut-off point 3.00. The result of multicollinearity test is presented in the appendix.

The authors implement a hierarchical cluster to explore the possible cluster results through an agglomerative approach. Ward Linkage is applied with squared Euclidean measure. First, the author conduct hierarchical cluster based on five dimension of risk perception (factors resulted from EFA in Study 1). Hierarchical cluster based on risk dimension is shown in the dendrogram below:
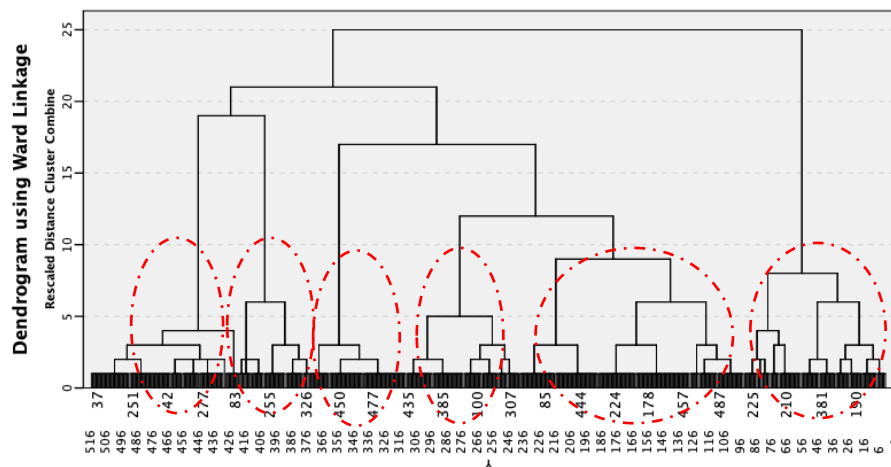
Figure 5.2. Dendrogram of Hierarchical Cluster Analysis Based on 5 Dimension of Risk

Based on the coefficient of agglomerative schedule, there is a significant increase on the sixth step from below (stage 507 – 508), hence six cluster solution could be concluded based on the dendrogram. However, several validation steps must be performed to evaluate the suggested clusters based on the hierarchical method. The non-hierarchical method then applied by implementing K-means cluster method. The author evaluate several scenario of quick cluster group based on K-Means approach. From 3, 4, 5, and 6 k-clusters

solution were performed to evaluate the significance different among the k-cluster solutions. Interestingly, all k-cluster solutions from 3, 4, 5, and 6 k-cluster solutions are significantly different based on the ANOVA test results. Regarding cluster membership, almost all clusters solution do not have equal number of respondent in each clusters. Therefore, the author then conduct second cluster analysis by implementing all risk items as the cluster variate.

Our second hierarchical cluster analysis is conducted by implementing 21 risk perception items that resulted from Exploratory Factor Analysis (EFA) in Study 1. Hence, the second trial of cluster analysis is then conducted by calculating the agglomerative coefficient through hierarchical method. However, since the data has wide range of possible answers among the respondent, then Z-score value of all 21 risk items are calculated. Furthermore, the z-score of risk perception item then proceed as the cluster variate. The results of hierarchical cluster analysis based on all risk perception items is shown in figure 5.3 below.
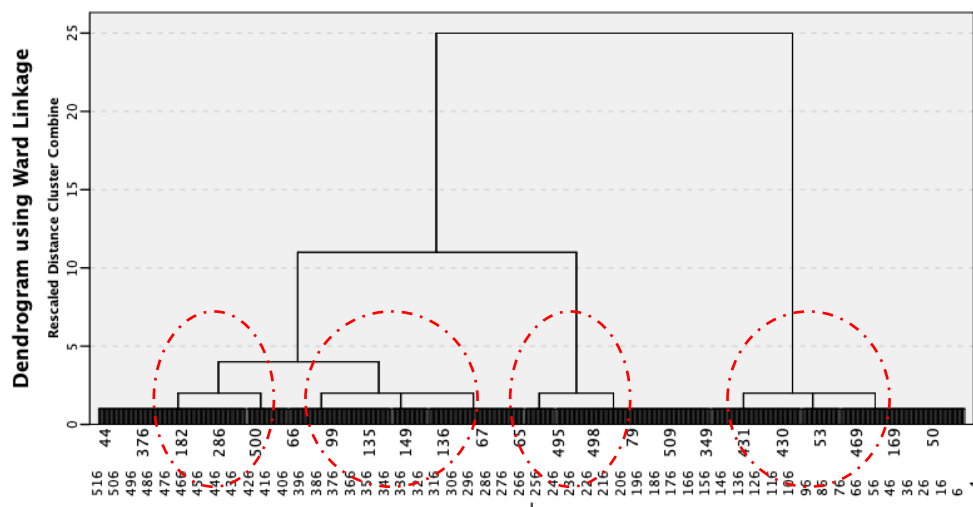
Figure 5.3. Dendrogram of Hierarchical Cluster Analysis Based on 21 Risk Items

Interestingly, the result of cluster analysis based on all risk perception items shows four cluster solutions as shown in dendrogram. Then, the author also evaluate the coefficient matrix as the cut-off point in determining the final number of resulted cluster. The coefficient component matrix shows that there is a significant increase of the coefficient value (more than 500 point) in step 509 to 510 (see table in appendix). Thus, four cluster solution is concluded based on the dendrogram and coefficient values in our second hierarchical cluster analysis.

Since the hierarchical analysis suggests four cluster solutions in the study, non-hierarchical cluster analysis (K-Means) is also implemented to measure the optimum cluster solution between the two approaches. The cluster solutions are then compared regarding criterion validity and applicability to the research question to select a single solution as the final cluster solution (Hair et al., 2014). The author also tested K-means analysis with cluster solutions such as two, three, four, and five clusters in this second analysis. However, the ANOVA test on each K-cluster test shows a wide range of F statistic values. Only four cluster solution that shows good F statistic and significantly different toward the risk perception on each cluster. K-Means method shows four clusters solution is the best fit from Risk Dimension-Cluster analysis and also Risk Items-Cluster Analysis.

The author follow the analysis based on the four cluster solutions that suggested by both method and statistically shows significant differences on risk items among the clusters (see appendix of ANOVA test on final cluster solutions). Then, the total number of cluster members are calculated, which are Cluster 1 (140 respondents), Cluster 2 (100 respondents), Cluster 3 (103 respondents), and Cluster 4 (171 respondents). Thus, the K-Means analysis's final cluster center value shows the clusters' differences.

After defining the cluster's center values, the author again checks the validity of resulted segments by conducting discriminant analysis. The number of clusters are assigned as grouping variables, meanwhile all risk items are assigned as independent variable. The test of equality of group means shows that all three variables are significantly different toward 21 variates of risk perception ($p<0.000$), therefore, the conclusion of four cluster solution is accepted for further analysis.

Before labelling the cluster identity, the author evaluate the cluster centers to identify the characteristic of each clusters toward risk perception items as the cluster variate. **Cluster 1** has a negative center value on R22, R20, R21, R18, and R8. Meanwhile **Cluster 2** has negative center value on most risk items but has positive center values on R15, R18, R19, R20, R21, R22, R23. **Cluster 3** has positive center values on R5, R6, R7, R9, and R10. The last one is **Cluster 4** has positive center value on R1, R2, R3, R4, R8, and R12. Then, the next step in cluster analysis is defining cluster identity or name of each group based on the center values of majority respondent in the group.

Cluster 1 has negative center value toward opportunity-loss risk (R18, R20, R21, R22) in majority. Hence, cluster 1 members have lowest perception toward opportunity-loss risk regarding their staying experience in tourist accommodation in the early post-pandemic era in Indonesia. Therefore, Cluster 1 is called as ***"The Performer",*** those tourist

who perceived lowest risk factors among the tourist and perform their travelling activities confidently during the early period of social distancing relaxation in Indonesia.

Table 5.3. Cluster Center Value Based on K-Means (from 21 risk items)

Final Cluster Centers

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Zscore: (R1) Worried of COVID-19 infection	-.86663	-.52118	.95433	.43948
Zscore: (R2) When infected will have Serious impact to my health	-.80264	-.46452	.66227	.52987
Zscore: (R3) Worried of Self-isolation if infected	-.74951	-.39054	.62947	.46286
Zscore: (R4) Worried if infecting relatives and friends	-.87811	-.43626	.83788	.46936
Zscore: (R5) Still worried if staying at tourist accommodation	-.88954	-.47709	1.23319	.26448
Zscore: (R6) Difficult to enjoy the accommodation	-.76182	-.32632	1.08306	.16217
Zscore: (R7) Uncomfortable in public spaces at the accommodation	-.76084	-.46522	1.06167	.25548
Zscore: (R8) Feeling uneasy if did'nt check the health protocol	-.94200	-.25380	.83687	.41557
Zscore: (R9) Worried of other people opinion	-.81097	-.39145	1.20214	.16877
Zscore: (R10) Will have conflict of opinion with relatives	-.76870	-.35048	1.20780	.10680
Zscore: (R11) Reducing direct interaction with other people	-.81867	-.24314	.84776	.30181

Final Cluster Centers

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Zscore: (R12) Choosing less crowded accommodation	-.62012	-.31441	.62116	.31742
Zscore: (R13) Staying at accommodation will cost more than before COVID-19	-.48239	-.27445	.75943	.09800
Zscore: (R14) It cost more for choosing safest accommodation on the trip	-.72217	-.17999	.73541	.25354
Zscore: (R15) Preparing unexpected expenses for sudden needs	-.63689	.06061	.52162	.17180
Zscore: (R18) I Can't enjoy the accommodation facilities	-.89151	.11737	.87119	.13650
Zscore: (R19) I have to make some backup plan to enjoy the stay	-.82888	.22561	1.03969	-.07956
Zscore: (R20) Travel Regulation makes my stay experience less memorable	-.92882	.27035	.92476	.04532
Zscore: (R21) I had to change my accommodation plan during this trip	-.80698	.25592	.92443	-.04580
Zscore: (R22) The rapid changes in COVID-19 regulation affected my stay experience	-.99077	.44947	.92630	-.00964
Zscore: (R23) Pandemic Travel regulation in Indonesia made my stay less memorable	-.87024	.24833	1.09304	-.09113

Cluster 2 has negative center value on most risk items, but has positive center values toward opportunity-loss risk (R19, R20, R21, R22, R23). Unlike Cluster 1 members, tourist in Cluster 2 perceived opportunity-loss risk during their travel and staying experiences. Thus, cluster 2 is labelled as ***"The Valuator",*** cluster for tourist who evaluate the value for money of their trip and accommodation choices in regards of risk perception that they might perceived during the leisure activities.

Cluster 3 has positive center value toward psychological risk (R5, R6, R7, R9, R10) with higher center value than all clusters resulted. It indicates that tourist in this cluster perceived psychological risk higher than other risk factors, and also higher in amount if compared with other cluster members. Therefore, cluster 3 is labelled as ***"The Avoider",*** cluster that has membership of tourist who still feel anxiety and stressful while travelling during this post-pandemic era.

The last one, Cluster 4 has positive center value toward Health Risk (R1, R2, R3, R4) and Social Risk (R8 and R12). It indicates that tourist in this cluster still perceived that

COVID-19 disease will have severe impact to their health condition. Therefore, cluster 4 is labelled as ***"The Hesitator"***, those tourist who feel hesitate to perform their leisure activities maximumly in this post-COVID-19 pandemic. For tourist in this cluster, this early stage of endemic is still being a threat for their health and immunity.

The result of cluster analysis in this study is supporting the segmentation process that conducted in the previous literatures. The public segmentation based on risk perception toward brown bear attacks in Japan for the example, conducted the cluster analysis based on four dimension of risk perception (Kubo & Shoji, 2016). Those four dimension with 12 risk factors were resulted from exploratory factor analysis using principal component analysis (PCA) with varimax method. The research concludes that there are three clusters regarding brown bear attack in Japan based on citizen risk perception which are; those who have negative experience with bear attack (Cluster 1), less accountable about bear attack because no experience (Cluster 2), and those citizen who have positive attitude toward bear conservation (Cluster 3).

Profiling based on Socio-demographic Variables

The last step in the cluster analysis is to profile the resulting segments through several variables according to the study's purposes. Several ANOVA and chi-squared tests were conducted to measure the differences between the clusters on each socio-demography and travel behavior variable. However, a normality test was conducted to investigate the data distribution among the clusters. The one sample Kolmogorov-Smirnov test was implemented to see the data distribution and it indicates that data is non-normally distributed. Therefore, non-parametric analysis is further conducted.

After calculating the Chi-Square test toward eight socio-demography variables, only five variables are significantly different between clusters which are gender (X^2=11.603, p=0.009), monthly expenses (X^2=68.463, p=0.000***), COVID-19 tests (X^2=6.474, p=0.091*), country of origin (X^2=81.945, ˆp=0.000***), comorbidity status (X^2=8.855, p=0.031**). Meanwhile, other socio-demography variables are not significantly different among the clusters which are; age group (X^2=11.938, p=0.289), education (X^2=3.344, p=0,911), and COVID-19 vaccination (X^2=13.252, p=0.152). Table 5.4 presents the result of chi square test among the socio-demography variables, meanwhile the detail of chi-square test result, including observed and expected values using SPSS are presented in the Appendix. All significantly different variables have expected value above threshold value (cut-off point 5).

Based on gender, all clusters have similar portion, where female tourist has a more significant number than male tourist in each cluster. According to age distribution, since the total respondent is dominated by young tourists aged 20-30 (37%) and 31– 40 (41.2%), those age distribution categories are almost equal in each clustered group. Based on educational background, higher education respondents are slightly dominating cluster 4 membership with 54 masters and 8 doctoral degree respondents. Meanwhile, based on the monthly expense variable, most respondents have personal monthly spending around 10 million rupiahs per month. This indicates that most of the respondents are tourists from Indonesia's middle-class social status.

Table 5.4. Mean Comparison of Socio-Demographic Variables

Research Variable	Item Choices	Pearson Chi-Square	The Performer (Cluster 1) n: 140 Freq. (percent)	The Valuator (Cluster 2) n: 100 Freq. (percent)	The Avoider (Cluster 3) n: 103 Freq. (percent)	The Hesitator (Cluster 4) n: 171 Freq. (percent)	Total n: 514 Freq. (percentage)
Gender	Male	0.048**	64 (12.5%)	41 (8 %)	36 (7%)	53 (10.3%)	194 (37.7%)
	Female		76 (14.8%)	59 (11.5%)	67 (13%)	118 (23%)	320 (62.3%)
Age Category	< 20 years	0.405	1 (0.2%)	2 (0.4%)	1 (1%)	4 (0.8%)	8 (1.6%)
	21 - 30 Years		50 (9.7%)	40 (7.8%)	48 (9.3 %)	56 (10.9%)	194 (37.7%)
	31 - 40 Years		62 (12.1%)	36 (7%)	40 (7.8%)	74 (14.4%)	212 (41.2%)
	41 - 50 Years		15 (2.9%)	13 (2.5%)	10 (1.9%)	29 (5.6%)	67 (13%)
	51 - 60 Years		10 (1.9%)	7 (1.4%)	4 (0.8%)	5 (1.0%)	26 (5.1%)
	> 60 Years		2 (0.4%)	2 (0.4%)	0	3 (0.6%)	7 (1.4%)
Educational Background	≤ High School	0.160	3 (0.6%)	5 (1.0 %)	5 (1 %)	11 (2.1%)	24 (4.7%)
	Diploma/Academy		11 (2.1%)	10 (1.6%)	9 (1.8%)	8 (1.6%)	38 (7.4%)
	Bachelor/Undergraduate		71 (13.8 %)	62 (12.1 %)	61 (11.9%)	90 (17.5%)	284 (55.3%)
	Master/Post-graduate		49 (9.5%)	22 (4.3%)	27 (5.3 %)	54 (10.5%)	152 (29.6%)
	Doctoral/PhD		6 (1.2 %)	1 (0.2%)	1 (0.2 %)	8 (1.6%	16 (3.1%)
Monthly Expenses	≤ 250 USD / ≤ Rp 3.500.000	0.000***	10 (1.9%)	13 (2.5%)	18 (3.5%)	31 (6 %)	72 (14%)

	Item Choices		The Performer (Cluster 1)	The Valuator (Cluster 2)	The Avoider (Cluster 3)	The Hesitator (Cluster 4)	Total
	250 – 500 USD / Rp 3.500.000 – Rp. 7.500.000		39 (7.6%)	27 (5.3 %)	37 (7.2%)	59 (11.5%)	162 (31.5%)
	500 – 750 USD / Rp 7.500.001 – Rp. 10.500.000		21 (4.1%)	12 (2.3%)	17 (3.3%)	23 (4.5%)	73 (14.2%)
	750 – 1000 USD / Rp. 10.500.001 – Rp. 14.000.000		12 (2.3%)	13 (2.5%)	12 (2.3%)	18 (3.5%)	55 (10.7%)
	1000 – 1250 USD / Rp. 14.000.001 – Rp. 17.500.000		7 (1.4%)	16 (3.1%)	8 (1.6%)	10 (1.9%)	41 (8%)
	1250 – 1500 USD / Rp. Rp. 17.500.001 – Rp. 21.000.000		9 (1.8%)	4 (0.8%)	6 (1.2%)	5 (1%)	24 (4.7%)
	1500 – 1750 USD / Rp. 21.000.001 – Rp. 24.000.000		9 (1.8%)	4 (0.8%)	6 (1.2%)	5 (1.0%)	25 (4.9%)
	1750 – 2000 USD / Rp. 24.000.001 – Rp. 28.000.000		15 (2.9%)	6 (1.2 %)	0	4 (0.8%)	25 (4.9%)
	> 2000 USD / > Rp. 28.0000.000		18 (3.5%)	5 (1%)	4 (0.8%)	10 (1.9%)	37 (7.2%)

In table 5.5 on other sociodemographic variables related to COVID-19, we can observe that most respondents have complete vaccination (booster or three doses). Meanwhile, only a few respondents had one and two doses of vaccination in all clusters. Hence, the differences regarding vaccination status significantly different ($p<0.1$). Regarding COVID-19 testing and comorbidity, most respondents have tested positive for COVID-19 during pandemic. Nevertheless, only a few respondents have a comorbidity that severe to the disease. Lastly, regarding the country of origin, except for domestic respondents, most foreign respondents dominated cluster 2 membership that we called as The Performer, which perceived low risk during their stay at tourist accommodation.

Table 5.5. Mean Comparison of Sociodemographic Variables Related to COVID-19

Research Variable	Item Choices	Pearson Chi-Square	The Performer (Cluster 1) n: 140 Freq. (percent)	The Valuator (Cluster 2) n: 100 Freq. (percent)	The Avoider (Cluster 3) n: 103 Freq. (percent)	The Hesitator (Cluster 4) n: 171 Freq. (percent)	Total n: 514 Freq. (percent)
COVID-19 Vaccination	1 Dose	0.045**	0	0	0	3 (0.6%)	3 (0.6%)
	2 Doses		15 (2.9%)	17 (3.3%)	23 (16.2%)	26 (5.1%)	81 (15.8%)

	3 Doses (Booster)		125 (24.3%)	83 (16.1%)	78 (15.2%)	141 (27.4%)	427 (83.1%)
	Not Vaccinated		0	0	2 (0.4%)	1 (0.2%)	3 (0.6%)
COVID-19 Test	Yes, ever tested Positive	0.205	63 (12.3%)	59 (11.5%)	52 (10.1%)	86 (16.7%)	260 (50.6%)
	No, Never tested positive		77 (15%)	41 (8%)	51 (9.9%)	85 (16.5%)	254 (49.4%)
Comorbidity	Yes, I have comorbidity	0.033**	4 (0.8%)	9 (1.8%)	13 (2.5%)	12 (2.3%)	38 (7.4%)
	No I have not.		136(26.5%)	91 (17.7%)	90 (17.5%)	159 (30.9%)	476 (92.6%)
Country of Origin	Indonesia	0.000***	87 (16.9%)	77 (15 %)	99 (19.3%)	148 (28.8%)	411 (80%)
	Other Asian Countries (Except Indonesia0		11 (2.1 %)	5 (1 %)	3 (0.6%)	9 (1.8%)	28 (5.4%)
	European Countries		31 (6%)	14 (2.7%)	0	10 (1.9%)	55 (10.7%)
	American Countries		4 (0.8%)	2 (0.4%)	0	2 (0.4%)	8 (1.6%)
	African Countries		2 (0.4%)	2 (0.4%)	1 (0.2%)	2 (0.4%)	7 (1.4%)
	Australia and New Zealand		5 (1%)	0	0	0	5 (1%)

This result is also supporting the finding of Wong et al (2020) regarding COVID-19 vaccination and risk perception among the citizens. Even though many people were concerned about the possibility of contracting COVID-19, health beliefs and descriptive findings of perceptions of susceptibility to infection showed that only a small number believed they had a high risk of contracting COVID-19. Since high-risk perception leads to preventive activities in many infectious disease outbreaks and has been demonstrated to improve epidemic control, this suggests the need to raise risk perception among the general people. Positively, most participants give the COVID-19 immunization excellent marks for perceived severity and advantages (L. P. Wong et al., 2020).

5.3.4. Segment Profiling Based on Travel Behavior

In this subsection, the author will elaborate the cluster differences regarding travel patterns and staying behavior among the cluster members. Those behavioral variables are staying motivation, trip member category, tourism style, length of stay, booking preferences, reason for booking, and transportation preferences. Those variables will describe the cluster solution to understand the segment profiling better.

Hence, based on the travel-related behavior, four variables significantly different among the clusters out of seven variables in total. Those variables are staying motivation (X^2=41.517, p=0,000***), length of stay (X^2=31.739, p=0,000***), transportation preferences (X^2=20.895, p=0.007***), and accommodation types (X^2=35.258, p=0.084*). Meanwhile, other non-significant travel behavior variables are number of trip members (X^2=8.022, p=0.236), booking preferences (X^2=9.822, p=0,132), tourism style (X^2=33.375, p=0.003***), and reason for booking (X^2=10.746, p=0.551). Detail of the segment profiling is described in table 5.6.

Based on staying motivation variables, most tourist enjoy their staying experience for gathering with family and to relieve fatigue from daily routine. However, beside those two motives, tourist in Cluster 2 also enjoy their staying experience for romantic atmosphere with their couple. Meanwhile, tourist in Cluster 3 also mentioned their motive is to enjoy the accommodation facility. Staycation and workcation are two kinds of those travel purpose.

According to tourism style category, tourist in cluster 3 and cluster 4 dominated by staycation travelers. Meanwhile, cluster 1 dominated by beach travelers, and cluster 2 dominated by ecotourism travelers. Regarding length of stay, most tourist stays for 2 nights in each accommodation they visited. Hence, some tourist in cluster 3 and cluster 4 stays for four nights and some tourist in cluster 1 are staying longer, more than six nights.

Table 5.6. Mean Comparison of Travel Behavior and Staying Variables

Research Variable	Item Choices	Pearson Chi-Square	The Performer (Cluster 1) n: 140 Freq. (percent)	The Valuator (Cluster 2) n: 100 Freq. (percent)	The Avoider (Cluster 3) n: 103 Freq. (percent)	The Hesitator (Cluster 4) n: 171 Freq. (percent)	Total n: 514 Freq. (percent)
Staying Motivation	Gathering with friends/family at the accommodation	0.001***	42 (8.2%)	39 (7.6%)	48 (9.3%)	71 (13.8%)	200 (38.9%)
	Relieve fatigue from a series of trips		46 (8.9%)	36 (7%)	44 (8.6%)	55 (10.7%)	181 (35.2%)
	Enjoying the romantic atmosphere with your partner		14 (2.7%)	5 (1%)	0	5 (1%)	24 (4.7%)
	To take advantage of special promos		5 (1%)	6 (1.2 %)	4 (0.8%)	4 (0.8%)	19 (3.7%)

	Curious about people's testimonials about the accommodation		3 (0.6%)	3 (0.6%)	1 (0.2%)	10 (5.7%)	17 (3.3%)
	To enjoy accommodation facilities optimally		23 (16.1%)	9 (1.8%)	6 (1.2%)	21 (4.1%)	59 (11.5%)
	Others… (ex: Workcation)		7 (1.4%)	2 (0.4%)	0	5 (4.7%)	14 (2.7%)
Trip Member Category	Travel with large group (more than 6 traveler)	0.299	21 (4.1%)	16 (3.1%)	18 (3.5%)	37 (7.2%)	92 (17.9%)
	Travel with small group (3-6 traveler)		65 (12.6%)	53 (10.3%)	55 (10.7%)	94 (18.3%)	267 (51.9%)
	Travel with couple/partner		35 (6.8%)	21 (4.1%)	23 (4.5%)	27 (5.3%)	106 (20.6%)
	Solo-traveler		19 (3.7%)	10 (1.9%)	7 (1.4%)	13 (2.5%)	49 (9.5%)
Tourism Style Category	Ecotourism (Trip to nature/park/woods)	0.142	20 (3.9%)	25 (4.9%)	17 (3.3%)	35 (6.8%)	97 (18.9%)
	Beach/sailing tourism		36 (7%)	23 (4.5%)	20 (3.9%)	33 (6.4%)	112 (21.8%)
	Cultural/historical Tourism		23 (4.5%)	14 (2.7%)	11 (2.1%)	29 (5.6%)	77 (15%)
	Culinary Tourism (Gastronomy)		17 (3.3%)	15 (2.9%)	17 (3.3 %)	24 (4.7%)	73 (14.2%)
	Sport/adventure Tourism		16 (3.1%)	5 (1%)	4 (0.8%)	5 (1%)	30 (5.8%)
	Staycation		24 (4.7 %)	14 (2.7%)	27 (5.3%)	33 (6.4%)	98 (19.1%)
	Religious Tourism		1 (0.2%)	0	1 (0.2%)	2 (0.4%)	4 (0.8%)
	Others:…............		3 (0.6%)	4 (0.8%)	6 (1.2%)	10 (1.9%)	23 (4.5%)
Length of Stay	1 - 2 Nights	0.000***	61 (11.9%)	45 (8.8%)	67 (13%)	92 (17.9%)	265 (51.6%)
	3 – 4 Nights		47 (9.1%)	48 (9.3%)	24 (4.7%)	66 (12.8%)	185 (36%)
	5 - 6 Nights		10 (1.9%)	4 (0.8%)	10 (1.9%)	8 (1.6%)	32 (6.2%)
	> 6 Nights		22 (4.3%)	3 (0.6%)	2 (0.4%)	5 (1%)	32 (6.2%)
Booking Preference	Via offline travel agency	0.198	17 (3.3%)	8 (1.6%)	12 (2.3%)	15 (2.9%)	52 (10.1%)
	Via online travel agent (Apps/Web)		94 (18.3%)	76 (14.8%)	65 (12.6%)	124 (24.1%)	39 (69.8%)
	Direct contact to hotel reception (email, chat, call)		26 (5.1%)	11 (2.1%)	16 (3.1%)	24 (4.7%)	77 (15%)
	walk in without prior booking		3 (0.6%)	5 (1%)	10 (1.9%)	8 (1.6%)	26 (5.1%)
Reason for Booking	Good rating at travel website	0.889	33 (6.4%)	23 (4.5%)	24 (4.7%)	36 (7%)	116 (22.6%)

	Reading guest comments/review		51 (9.9%)	40 (7.8%)	39 (7.6%)	66 (12.8%)	196 (38.1%)
	Recommendation from friends/family		29 (5.6%)	22 (4.3%)	27 (5.3%)	40 (7.8%)	118 (23%)
	Advertising/promotion		9 (1.8%)	4 (0.8%)	4 (0.8%)	8 (1.6%)	25 (4.9%)
	Previous Staying Experience		16 (3.1%)	9 (1.8%)	7 (1.4%)	12 (2.3%)	44 (8.6%)
	Others:…............................		2 (0.4%)	2 (0.4%)	1 (0.2%)	6 (1.2%)	15 (3 %)
Transportation Preference	Airplane	0.007***	66 (12.8%)	34 (6.6 %)	35 (6.8%)	63 (12.3%)	198 (38.5%)
	Train		15 (2.9%)	14 (2.7%)	7 (1.4%)	17 (3.3%)	53 (10.3%)
	Public Bus		3 (0.6%)	1 (0.2%)	4 (0.8%)	4 (0.8%)	12 (2.3%)
	Car Rent		48 (9.3%)	42 (8.2%)	57 (11.1%)	83 (16.1%)	230 (44.7%)
	Boat/Cruise Ship		8 (1.6%)	9 (1.8%)	0	4 (0.8%)	21 (4.1%)
Accommodation Type	Starred Hotel	0.018**	87 (16.9%)	66 (12.8%)	78 (15.2%)	126 (24.5%)	357 (69.5%)
	Villa		24 (4.7%)	18 (3.5%)	13 (2.5%)	19 (3.7%)	74 (14.4%)
	Apartment		0	0	4 (0.8%)	6 (1.2 %)	10 (1.9%)
	Homestay/Hostel		21 (4.1%)	13 (2.5%)	4 (0.8%)	15 (2.9%)	53 (10.3%)
	Others (resort, glamping, etc)		8 (1.6%)	3 (0.6%)	4 (0.2%)	5 (1%)	20 (3.9%)

Based on transportation preferences, in the early post pandemic era, most tourist prefer using private cars for their transportation to their desired destination. Some tourist in cluster 1 that dominated by foreign travelers used airplane and boat for their preferred transportation. Meanwhile some cluster 2 members also use boat transportation to their tourist destination. Following the travel behavior profile, accommodation preference is also different among the clusters. Although all cluster members stay at starred hotels, however in different accommodation types, each cluster has an interesting preference. Some tourist in Cluster 1 stays at hostel, meanwhile tourist in cluster 4 prefer stay at villa.

5.3.5. Profiling Based on Accommodation Attributes

The author conducts further analysis to investigate the differences among clusters toward their preference on accommodation attributes. According to test of

normality, the data of six accommodation attributes are not normally distributed. Hence, non-parametric analysis is conducted through Kruskal-Wallis test. Cluster number is grouping variable, meanwhile accommodation attributes are the test variables.

Table 5.7. Non-Parametric Test of Accommodation Attributes

Test Statistics[a,b]						
	(39) Hygiene – Routine disinfection in each guest room	(41) Checkin– Technology-based services to reduce physical contact	(44) Location–The location is near from tourist attraction/destination	(45) Service– The staff has good quality services	(46) Breakfast– Offering breakfast with no additional cost	(47) Facility– Offering various public facilities (lounge, gym, pool, parking)
Kruskal–Wallis H	25.990	43.421	12.475	4.004	6.640	13.601
df	3	3	3	3	3	3
Asymp. Sig.	.000	.000	.006	.261	.084	.004

a. Kruskal Wallis Test
b. Grouping Variable: K_means 4 Cluster by item

Based on the result of Kruskal-Wallis test, four accommodation attributes are significantly different between the clusters ($p<0.000***$). Hygiene Factors, Check-in Process, Accommodation Location, and Public Facilities are the attributes that statistically different between the clusters. Hence, to investigate the differences in deeper insight, the author conducts independent sample non-parametric test (Dunn post-hoc analysis) to investigate the detail differences among the clusters.

Regarding hygiene attribute, post-hoc data shows that the total mean rank between the cluster has slightly differences; Cluster 1 (221.93), Cluster 2 (239.88), Cluster 3 (207.25), and Cluster 4 (266.96). Pairwise comparison between the clusters shows that cluster 1 has significant differences between cluster 4 and cluster 3. Also, Cluster 2 has significant differences between Cluster 3. Therefore, regarding hygiene factor, tourist in cluster 1 and cluster 2 has less concern toward hygiene factors rather than tourist in cluster 3 and cluster 4.

Sample1–Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
1–2	-17.943	17.764	-1.010	.312	1.000
1–4	-45.030	15.464	-2.912	.004	.022
1–3	-85.315	17.612	-4.844	.000	.000
2–4	-27.087	17.080	-1.586	.113	.677
2–3	-67.373	19.047	-3.537	.000	.002
4–3	40.286	16.922	2.381	.017	.104

Figure 5.4. Post-hoc Test in Kruskal-Wallis on Hygiene Attributes

Based on second attributes, the check-in process, Kruskal-Wallis independent sample test shows that the total mean rank among the clusters are also slightly different; Cluster 1 (205.55), Cluster 2 (259.09), Cluster 3 (328.31), and Cluster 4 (256.45). Pairwise comparison also shows that Cluster 4 and Cluster 2 has no different toward electronic check in. But it has different mean with Cluster 1 and Cluster 3. The cluster 3 has higher concern toward check-in process.

Sample1–Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
1–4	-50.900	16.361	-3.111	.002	.011
1–2	-53.540	18.795	-2.849	.004	.026
1–3	-122.761	18.635	-6.588	.000	.000
4–2	2.640	18.071	.146	.884	1.000
4–3	71.860	17.904	4.014	.000	.000
2–3	-69.221	20.152	-3.435	.001	.004

Figure 5.5. Post-hoc Test in Kruskal-Wallis on Check-in Process Attributes

Regarding location of the accommodation, Kruskal-Wallis independent sample test shows that the total mean rank among the clusters are also slightly different. Cluster 1 (262.68), Cluster 2 (268.39), Cluster 3 (286.17), Cluster 4 (229.62). Pairwise comparison also shows that only Cluster 4 and Cluster 3 that has statistically different.

Sample1–Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
4–1	33.062	15.585	2.121	.034	.203
4–2	38.778	17.214	2.253	.024	.146
4–3	56.558	17.055	3.316	.001	.005
1–2	−5.716	17.903	−.319	.750	1.000
1–3	−23.496	17.751	−1.324	.186	1.000
2–3	−17.780	19.197	−.926	.354	1.000

Figure 5.6. Post-hoc Test in Kruskal-Wallis on Location of Accommodation

Regarding public facility attributes, the independent sample test shows that the total mean rank among the clusters are not that different; Cluster 1 (255.15), Cluster 2 (232.87), Cluster 3 (300.08), and Cluster 4 (248.14). Pairwise comparison shows that Cluster 2 and Cluster 3 is significantly different as well as cluster 4 and cluster 3. Therefore, regarding public facility, Cluster 3 has higher concern rather than Cluster 2, Cluster 3, and Cluster 4.

Sample1–Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
2–4	−15.275	17.532	−.871	.384	1.000
2–1	22.285	18.234	1.222	.222	1.000
2–3	−67.285	19.551	−3.441	.001	.003
4–1	7.010	15.873	.442	.659	1.000
4–3	52.010	17.370	2.994	.003	.017
1–3	−45.000	18.079	−2.489	.013	.077

Figure 5.7. Post-hoc Test in Kruskal-Wallis on Accommodation Facility

5.3.6. Segment Profiling Based on Loyalty Behavior

The last factor for segment profiling is the loyalty behavior that divided into three variables; Satisfaction, Revisit Intention, and Word of Mouth intention. Since the

data also shows non-normal distribution, hence, non-parametric test is performed. Kruskal-Wallis analysis is conducted to investigate the differences between the clusters. Cluster number is assigned as grouping variable, meanwhile three variables of loyalty behavior are assigned as test variables. The Kruskal-Wallis test result is shown as follow.

Table 5.8. Non-Parametric Test of Behavioral Loyalty Variables

Test Statistics[a,b]

	Satisfaction	Revisit Intention	WoM
Kruskal–Wallis H	39.569	21.372	34.181
df	3	3	3
Asymp. Sig.	.000	.000	.000

a. Kruskal Wallis Test
b. Grouping Variable: K_means 4 Cluster by item

Based on the test result, all three loyalty variables are statistically different significantly between the clusters. Hence, to better understand the results, post-hoc analysis is also conducted by implementing independent sample test in Kruskal-Wallis. The result shows interesting finding regarding the loyalty behavior among the cluster.

Regarding satisfaction variable, the total mean rank between clusters is; Cluster 1 (322.67), Cluster 2 (246.49), Cluster 3 (215.12), and Cluster 4 (236,11). Pairwise comparison shows that Cluster 1 has significantly differences between all cluster toward their satisfaction. The data shows that tourists in Cluster 1 are satisfy enough with their accommodation during their trip in the early post-pandemic era in Indonesia. Meanwhile Cluster 3 is the lowest satisfaction among the clusters.

Sample1 –Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
3–4	−20.998	18.493	−1.135	.256	1.000
3–2	31.373	20.816	1.507	.132	.791
3–1	107.551	19.248	5.588	.000	.000
4–2	10.376	18.666	.556	.578	1.000
4–1	86.554	16.900	5.122	.000	.000
2–1	76.178	19.413	3.924	.000	.001

Figure 5.8. Post-hoc Test in Kruskal-Wallis on Tourist Satisfaction

Regarding variable Revisit Intention, the total mean rank between clusters is; Cluster 1 (305.11), Cluster 2 (248.47), Cluster 3 (226.53), and Cluster 4 (242.45). Pairwise comparison shows that there are only significant differences between Cluster 1 with other remaining clusters. Cluster 1 has higher revisit intention compared other clusters. It can be assumed that tourist in Cluster 1 has higher intention to revisit the similar accommodation again in their next visit. Meanwhile, tourist in Cluster 3, Cluster 2, and Cluster 1 are not that interested to revisit the same destination again.

Sample1 –Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
3–4	−15.916	18.359	−.867	.386	1.000
3–2	21.936	20.664	1.062	.288	1.000
3–1	78.580	19.108	4.113	.000	.000
4–2	6.020	18.530	.325	.745	1.000
4–1	62.664	16.777	3.735	.000	.001
2–1	56.644	19.272	2.939	.003	.020

Figure 5.9. Post-hoc Test in Kruskal-Wallis on Revisit Intention

Based on Word of Mouth Intention, the total mean rank between clusters are; Cluster 1 (319.05), Cluster 2 (242.15), Cluster 3 (228.28), and Cluster 4 (233.68). Pairwise comparison shows that there are only significant differences between Cluster 1 with all remaining clusters. Meanwhile, all Cluster 2, Cluster 3 and Cluster 4 are not statistically different among each other. It can be assumed that Cluster 1 has higher intention to spread word of mouth regarding the accommodation rather than other clusters.

Sample1 –Samp...	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
3–4	−5.403	18.339	−.295	.768	1.000
3–2	13.863	20.642	.672	.502	1.000
3–1	90.772	19.087	4.756	.000	.000
4–2	8.461	18.510	.457	.648	1.000
4–1	85.369	16.758	5.094	.000	.000
2–1	76.909	19.251	3.995	.000	.000

Figure 5.10. Post-hoc Test in Kruskal-Wallis on Word of Mouth

5.3.7. Summary of Segment Profiling

Table 5.9 presents the summary of segment profiling based on risk perception, socio-demographic variables, travel behavior, loyalty behavior, and accommodation attributes among the resulted clusters. The variables presented in the table are those factors that significantly different between the clusters, after evaluating the result of ANOVA and Chi-square test. Thus, by analyzing the characteristic of variable in each cluster, the author summarizes of cluster's member profiles in each segment.

Table 5.9. The Summary of Segment Profiling

No	Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4
		The Performer	**The Valuator**	**The Avoider**	**The Hesitator**
1	Risk Perception Profiles	Perceiving very low level on all risk factors. They are confident enough to travel	Perceiving all risk factors and concern toward regulation implementation	Mostly Perceiving Psychological Risk *(feeling anxiety and stress to travel)*	Concerning about health risk, thinking about severe impact of the outbreak
2	Socio-demographic	Dominated by higher income tourist (more than IDR 25 million), almost equal number on gender, and most foreign tourist are grouped in this cluster	Dominated by middle income tourist (IDR 15 million), almost equal number on gender, Mostly domestic and Asian tourist.	Dominated by middle-lower income tourist (less than IDR 10 million), majority are female domestic travelers.	Middle-higher income tourist (IDR 15 – 20 million), most of the cluster members a female travelers.
3	Travel Behavior	Majority are ecotourism and beach travelers, average stays are more than 5 nights, beside hotel, also prefer stay at Villa, Homestay and Resort	Dominated by travelers who enjoy the beach walk and ecotourism, average stays are 2-4 nights, and prefer staying at starred hotel and villa	Dominated Culinary and staycation travelers, average stays are 2-4 nights, prefer stays at starred hotel, villa, and resort	Staycation and family gathering oriented travelers, average length of stays are for 2-4 nights, mostly stays at starred hotel, but also prefer villa and homestay
4	Accommodation Attributes	Less concerned toward Hygiene attributes, do not prefer electronic check-in process, less attracted toward public facilities	Less concerned about hygiene attributes, also concern on electronic check-in, and attracted to public facility existence in the accommodation	Concerned about hygiene attributes, highly preferred on electronic check-in and attracted to availability of public facilities in the accommodation	Concern about Hygiene attributes, also concern on the use of electronic check-in, and less attracted toward public facilities
5	Behavioral Loyalty	Satisfy enough toward accommodation, consider to revisit again, thinking about giving testimony (WoM)	Lowest satisfaction among the clusters, less interested to revisit, and low intention to giving testimony	less satisfy with the accommodation, less interested to revisit, and low intention to giving testimony	less satisfy with the accommodation, less interested to revisit, and do not intent to giving testimony

4.5. Nomological Validity: Testing Fit as Mediation in the Structural Model

The fit process implemented in this study is "fit as mediation," which investigates the impact of risk perception on loyalty behavior and evaluates the mediation effect of satisfaction between risk perception, revisit intention, and word of mouth. The structural equation model (SEM) with AMOS software is conducted as the analysis approach. Before conducting SEM, the study should evaluate the validity and reliability of all variables and dimensions in the study. Hence, Confirmatory Factor Analysis (CFA) is conducted.

The CFA is aimed to conduct the measurement model before testing the construct through the structural model in the study. In the CFA, the latent variables will be evaluated toward the model to result in the goodness of fit for the measurement model. Once the model has reached the goodness of fit standard, then the model is accepted to be further analyzed in the structural model (for hypothesis testing). In this CFA measurement model, the author conducts several 'modification indices' to achieve the goodness of fit (GoF) cut-off point. In total, six modification indices are applied in the study, and one item (F1-OPP1) in the 'opportunity-loss risk' is deleted to improve the goodness of fit in the measurement model. Hence, after carefully evaluating each step in conducting the CFA measurement model, the final measurement according to the goodness of fit standard is presented in table 5.10.

Table 5.10. Goodness of Fit Measurement Model of the Study

No	Fit Indices Standard	Cut-off Point	Results of Model Measurement	Conclusion
1.	CMIN/df	2 < value < 3	2.58	Marginal Fit
2.	CFI	≥ 0.90	0.94	Good Fit
3.	TLI	≥ 0.90	0.93	Good Fit
4.	RMSEA	< 0.07	0.056	Good Fit

Based on table 5.10 regarding the goodness of fit evaluation in the SEM model, the CFA summarizes that the model is a good fit and could be acceptable for further analysis. Since the total number of observed variables is greater than 30 items, the cut-off point for Tucker Lewis Index (TLI) and Comparative Fit Index (CFI) is greater than 0.90. Furthermore, by implementing the standard point of CFI at 0.90, the RMSEA (Root Mean

Square Error of Approximation) value should be below than 0.07 (Hair et al., 2014). Therefore, the measurement model is ready to investigate the structural model further.

Exogenous constructs are the multi-item, latent counterpart to independent variables. These are constructs determined by factors external to the model. Endogenous constructs are the multi-item, latent analogues of dependent variables. Hence, in this study, risk perception is the exogenous variable, and behavior loyalty (satisfaction, revisit intention, and word of mouth intention) are the endogenous variables. Furthermore, satisfaction will also become the mediator or intervening variable within the model. Hence, the structural model analysis results the hypothesis testing of the study. According to the research purpose in this structural model analysis, the author would like to investigate the influence of risk perception toward behavioral loyalty. However, since the purpose to analyze the mediation relationship, then the author conducts 5000 bootstraps analysis in the study. In the table 5.11, the result of hypothesis testing in the structural model is presented.

Based on the summary of SEM analysis results in Table 5.11, all hypotheses are supported in the study and confirmed that risk perception has significant negative impact toward behavior loyalty. The higher risk perception among the tourist, the lower the satisfaction in their staying experiences. Tourist satisfaction also have significant and positive impact toward revisit intention and word of mouth intention. However, while mediated by tourist satisfaction, risk perception has negative impact toward revisit intention and word of mouth intention.

The finding in this analysis supports the previous critical review of Hasan et al (2017) which concluded that risk perceptions have significant impact toward tourist satisfaction. In the literature, both a significant and non-significant negative association between perceived risks and satisfaction is supported by empirical evidence. These sentiments may also directly impact the customer's satisfaction or dissatisfaction. Sweeney, Soutar, and Johnson (1999) also state that some risk elements, such as performance, financial, and time risk, are strongly associated with post-purchase evaluations, which may negatively affect consumer value judgments (Hasan et al., 2017). Similarly, high perceived risk reduces traveler satisfaction and harms consumer repurchase intention. According to the research, customers who perceive a low level of risk associated with the products are likely to be more tolerant in terms of overall satisfaction.
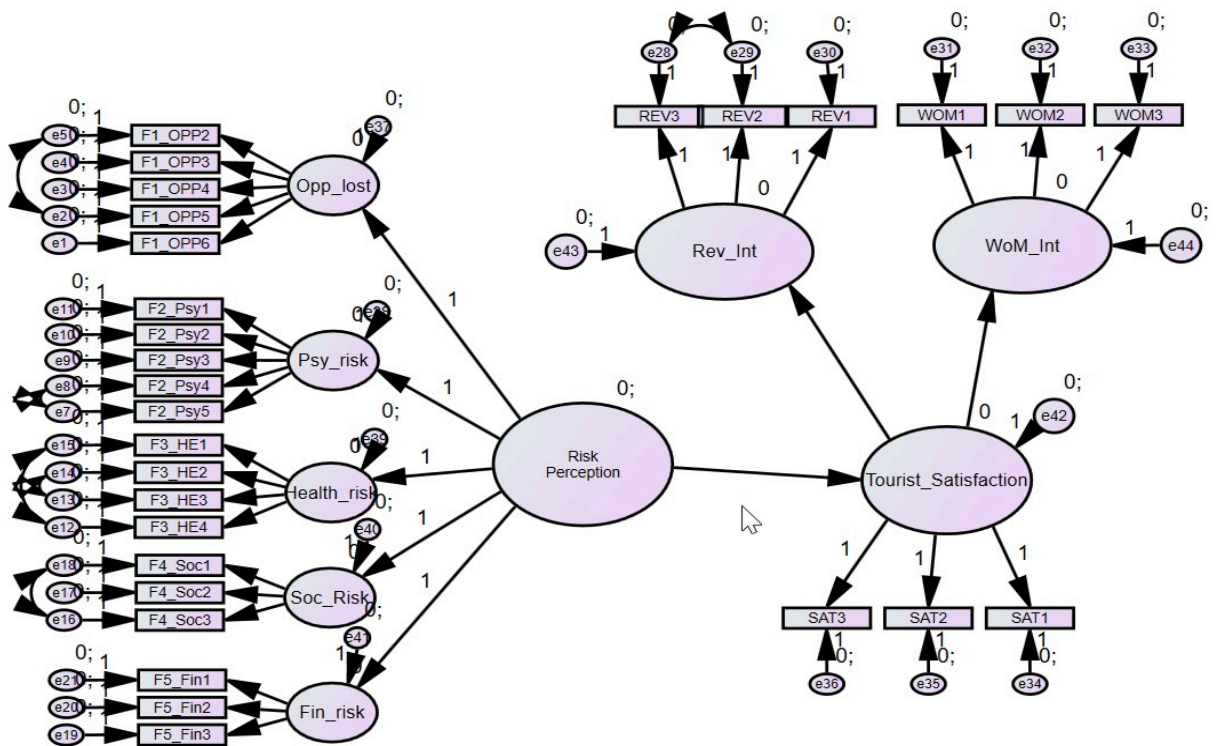
Figure 5.11. Structural Model in the Study

Regarding the relations of risk perception, satisfaction, and revisit intention, the study of Um et al (2006) revealed the mediation role of tourist satisfaction toward revisit intention with various antecedents. However, the role of risk perception as the antecedent is still not yet elaborated in their study. Thus, the finding in this study might be filling the gap in the literature. Tourist satisfaction significantly mediate the relations between risk perception and revisit intention. The higher the risk perception, the lower the intention of the tourist to visit the same destination in this post COVID-19 context.

Thus, this finding is also confirming the reason why tourist segmentation based on risk perception is important to predict future behavior of the tourist in the post pandemic era. Clustering the tourist based on their risk perception might be beneficial to categorize their travel behavior and it guides the marketing decision among the tourism practitioners. This structural model has confirmed the role of fit as mediation in the context of the relations between risk perception variables and behavior loyalty variables. The concept of fit as mediation confirms the relation of factors in marketing strategy, whether a variable is significantly impacting the performance of the strategies (Peng et al., 2011). In this context, the mediation role of satisfaction is supporting the relations between risk perception and behavior loyalty variables (revisit intention and word of mouth). Fit as

mediation specifies the existence of a relevant mechanism intervening between the cause and effects variables. In this study, the existence of intervening mechanism of satisfaction between risk perception and behavior loyalty has supporting the concept of fit as mediation.

Table 5.11. The Hypotheses Testing in Structural Model

Hyp.	Path Direction	C.R.	P-Values	Std. Estimate	Conclusion
H1	Risk Perception → Staisfaction	-7.993	***	-0.406	Supported
H2	Satisfaction → Revisit Intention	22.268	***	0.876	Supported
H3	Satisfaction → Word of Mouth Intention	20.780	***	0.837	Supported
H4	Risk Perception → Satisfaction → Revisit Intention		***	-0.340	Supported
H5	Risk Perception → Satisfaction → Word of Mouth Intention		***	-0.356	Supported

The author argues that by decreasing the risk perception among tourist, the satisfaction will be increasing and it will impact revisit intention and word of mouth intention among tourist. The study also stated that the risk perception needs tourist satisfaction in determining the behavior loyalty of tourist. Therefore, the role of risk perception on determining tourism industry performances are important to be investigated. Therefore, segmenting tourist based on their risk perception will be beneficiary to the tourism and hospitality sectors and also supporting the literature on risk perception topics.

CHAPTER 6: CONCLUSION AND DISCUSSION

6.1. Research Conclusion

This study concluded several conclusions according to the study purposes. Regarding the research questions, these following conclusions may be summarized from the analysis. First, the conclusion regarding multidimensional factor analysis on risk perception. Second, the conclusion on accommodation attributes preferences based on the text mining approach. Third is the conclusion on cluster analysis for segment revelation of the respondents. And, fourth conclusion is the segment profiling based on several variables in the study. Thus, the author also concludes the model analysis regarding the relations between risk perception and behavior loyalty.

1) *Multi-dimensional Risk Perception*

Using exploratory factor analysis, this study investigated several risk perception factors associated with staying in tourist accommodation during the travel restriction relaxation in Indonesia. From March to July 2022, data were collected using an online and offline survey of 514 domestic and international tourists. The study grouped 21 risk elements into five aspects of risk perception.

The first dimension is Opportunity-loss Risk, which has six risk dimension and explains 44% of the variance. Psychological Risk, the second risk dimension, consists of five measured items with a total variance explained of 8.8%. Our third dimension, Health Risk, consists of four components with a total variance of 5.6%. Other dimensions include Social Risk (three items), with an explained variance of 5.5%, and Financial Risk (three items), with an explained variance of 4.8%. All factor loadings in those dimension have met the cut-off point and valued above 0.5 on each risk item.

Interestingly, although COVID-19 literatures predict that most tourist will perceive health risk over other risk factors in the post pandemic era, but this study summarize another finding. The biggest variance extracted in the risk perception factor is explained by the concern on risk of opportunity-loss. Most tourist will perceived their opportunity-loss higher than their perception toward health risk in this current context of pandemic. Hence, the hospitality practitioners could develop their marketing strategy by providing value for money services and re-revaluating their pricing strategy after the pandemic.

2) *The Accommodation Attribute Preferences*

This study investigates the tourist preferences toward accommodation attributes during the ease of the COVID-19 pandemic in Indonesia. Using Latent Dirichlet Allocation, this text-mining study concluded seven accommodation attributes that were preferred among travelers through a topic modeling technique. Data were collected from www.traveloka.com, a popular online travel agency in Indonesia. 11.500 comments from 676 accommodations in Indonesia's 10 most visited provinces were collected. Orange3 Text Mining application was used as the tool for analysis. The results concluded six accommodation attributes that are preferred among travelers during the COVID-19 pandemic. The attributes resulting in this analysis are Hygiene Factors, Check-in Process, Strategic Location, Pool & Breakfast, Service Quality, and Accommodation Facilities.

Although the study has concluded six accommodation attributes in the analysis, this finding strengthens the previous literature regarding accommodation attributes that influence tourist decision-making. This study also validates the importance of hygiene-related attributes in accommodations, which is a priority consideration among travelers in the post-pandemic era. However, this study also validates another attribute that are less elaborated in previous literature, such as the check-in process. During COVID-19 pandemic, less-physical contact in the check-in process initiated several innovation among the receptions, such as electronic check-in, barcode method, and others. Another interesting finding in this study shows that there is no significant data that describe "price" as the major attribute during this COVID-19 pandemic. Perhaps this finding can be further investigated in the future study.

3) *Cluster Analysis Based on Risk Perception*

This study summarize four cluster solution of tourist based on risk perception in the context of post COVID-19 pandemic in Indonesia. Cluster 1 is called ***"The Performer,"*** those tourists perceive very low level on all risk factors. They are confident enough to travel and staying at various kind of accommodation. Based on sociodemographic, The Performer are dominated by higher income tourist (more than IDR 25 million), almost equal number on gender, and most foreign tourist are grouped in this cluster. This cluster members majority are ecotourism and beach travelers, average stays are more than 5 nights, beside hotel, also prefer stay at Villa, Homestay and Resort. Tourist in this cluster are Less concerned toward Hygiene attributes, do not

prefer electronic check-in process, and less attracted toward public facilities. Meanwhile, during their trip in the early COVID-19 travel relaxation in Indonesia, this cluster satisfy enough toward their accommodations, consider to revisit again, and thinking about giving testimony (WoM).

Cluster 2 is called **"The Valuator"** those tourist who are Perceiving all risk factors and concern toward COVID-19 regulation implementation. Their sociodemographic are dominated by middle income tourist (IDR 15 million), almost equal number on gender, and mostly domestic and Asian tourists. According to their behavior, this cluster are dominated by travelers who enjoy the beach walk and ecotourism, average stays are 2-4 nights, and prefer staying at starred hotel and villa. However, they are Less concerned about hygiene attributes, but concern on electronic check-in, and attracted to public facility existence in the accommodation. However, based on their trip, this cluster has Lowest satisfaction among the clusters, less interested to revisit, and low intention to giving testimony.

Cluster 3 is called "The Avoider" those tourist who still Perceiving Psychological Risk. They tend to feel anxiety and stress to travel during this post-pandemic era. This cluster is Dominated by middle-lower income tourist (less than IDR 10 million), majority are female domestic travelers. Their travel behavior are dominated by culinary and staycation traveler which have average stays about 2-4 nights, and prefer stays at starred hotel, villa, and resort. They very concerned about hygiene attributes, highly preferred on electronic check-in, and attracted to availability of public facilities in the accommodation. According to their current experiences, they are less satisfied with the their selected accommodation, less interested to revisit, and low intention to giving testimony.

Cluster 4 is called "The Hesitator", the tourist who are Concerning about health risk, thinking about severe impact of the outbreak while performing their travel activities. This cluster is dominated by middle-higher income tourist (IDR 15 – 20 million), most of the cluster members a female travelers. Their travel behavior are dominated by staycation and family gathering oriented travelers, average length of stays are for 2-4 nights, mostly stays at starred hotel, but also prefer villa and homestay. This cluster are really concern about Hygiene attributes, also concern on the use of electronic check-in, and less attracted toward public facilities. However, based on their trip experience in the early of travel relaxation, they feel less satisfied with the accommodation, less interested to revisit, and do not intent to giving testimony

Understanding how tourists act and make decisions will help the destination make better tourism policies. This study could help the tourism and hospitality industries develop marketing plans to help their businesses recover from the effects of COVID-19 pandemic. By understanding tourist behavior in specific segments, the hotel manager and other tourism destination stakeholders shall target specific segments or even niche markets to optimize their services by considering the tourists' perception of risk. This study also benefit developing countries' local and national governments as they formulate a well-planned policy to recover the tourism industry in the post-pandemic era.

From a theoretical point of view, this study contribute to the growth of risk perception theories in the post-pandemic era. Since the discussion on risk perception is still developing in validating the risk dimensions and factors, this study has proposed a novel finding and point of view by proposing 21 risk perception items in five specific risk dimensions. In future developments, more studies could validate those risk perception items in different study contexts.

4) *Nomological Validity: Testing Fit as Mediation in the Structural Model*

Our last study in this dissertation paper is the structural equation model by implementing the fit as mediation concept as the nomological validity between cluster variate and marketing performance through tourist loyalty behavior. Nomological validity refers to the degree to which predictions in a formal theoretical network containing a construct of interest are confirmed. Thus, using the concept of fit as mediation, the author develop a structural model to be investigated in the analysis.

The structural model analysis results the hypothesis testing of the study. According to the research purpose in this structural model analysis, the author would like to investigate the influence of risk perception toward behavioral loyalty. However, since the purpose of the study to analyze the mediation relationship, then the author conducts 5000 bootstraps analysis in the study. In the table 5.11, the result of hypothesis testing in the structural model is presented.

Based on the summary of SEM analysis results, all hypotheses are supported in the study and confirmed that risk perception has significant negative impact toward behavior loyalty. The higher risk perception among the tourist, the lower the satisfaction in their staying experiences. Tourist satisfaction also have significant and positive impact toward revisit intention and word of mouth intention. However, while

mediated by tourist satisfaction, risk perception has negative impact toward revisit intention and word of mouth intention.

Regarding the relations of risk perception, satisfaction, and revisit intention, the study of Um et al (2006) revealed the mediation role of tourist satisfaction toward revisit intention with various antecedents. However, the role of risk perception as the antecedent is still not yet elaborated in their study. Thus, the finding in this study might be filling the gap in the literature. Tourist satisfaction significantly mediate the relations between risk perception and revisit intention. The higher the risk perception, the lower the intention of the tourist to visit the same destination in this post COVID-19 context.

In another context, the relation between risk perception, satisfaction, and word of mouth intention also discussed in this study. Tourist satisfaction negative and significantly mediate the relations between risk perception and word of mouth intention. This finding supports the research by Wardi et al (2018) that concluded tourist satisfaction is significantly mediate the relations between antecedent and word of mouth intention in the context of halal tourism. Hence, it could be concluded that tourist will have negative word of mouth if they are not satisfying during their travel experience which might be caused by the higher risk perception that they believed before the visit.

Thus, this finding is also confirming the reason why tourist segmentation based on risk perception is important to predict future behavior of the tourist in the post pandemic era. Clustering the tourist based on their risk perception might be beneficial to categorize their travel behavior and it guides the marketing decision among the tourism practitioners. This structural model has confirmed the role of fit as mediation in the context of the relations between risk perception variables and behavior loyalty variables.

6.2. Research Limitations

This study still has several limitations in conducting the research analysis. First, the respondents are still dominated by domestic tourists, which makes the generalization of the results more challenging, and also the language barrier might issue a misunderstanding in completing the questionnaire. Second, the study period is in the early stage of post COVID-19 era in Indonesia, which might still dominated by the risk-taker tourists. Furthermore, although Dolnicar (2014) suggests the number of respondents for the segmentation study

is 70 times the cluster variates, the samples of this study could be increased to have a better generalization in the cluster descriptions.

Meanwhile, regarding the text mining analysis, this study also has some limitations. The period of data collection (scrapping the guest reviews) is limited to only three months in early 2022. This might limit the results of the analysis. Since the travel restriction is more relaxed in Indonesia, more data are available from online travel agencies, and the number of data collected might be improved. Also, this study only focused on the guest review in Bahasa Indonesia, excluding foreign reviews in English or other languages. Hence, more languages might be included in the analysis for future study.

This study has contributed to developing tourism and hospitality research using text mining. Several studies have proposed this approach. However, more research should be developed to analyse user-generated content data in online travel agency websites. This research also contributes to the tourism and hospitality industry's recovery strategy after the pandemic. By proposing six major accommodation attributes in the analysis, the hotel and resort manager could develop their service and marketing strategy to speed recovery in the post-pandemic era.

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CURRICULUM VITAE

Noveri Maulana, Pria kelahiran Payakumbuh, Sumatera Barat, 04 November 1987 ini, merupakan seorang konsultan manajemen dan dosen tersertifikasi di PPM Manajemen Jakarta. Anak ketiga dari tiga bersaudara ini, menyelesaikan studi sarjana pada Fakultas Ilmu Komunikasi, Universitas Padjadjaran Bandung, meraih gelar Magister Manajemen dari Sekolah Tinggi Manajemen PPM Jakarta, dan melanjutkan Studi Doktoral pada Program Pascasarjana Ilmu Manajemen (PPIM), Fakultas Ekonomi dan Bisnis, Universitas Indonesia.

Kesehariannya, Noveri memberikan pelatihan dan konsultasi manajemen untuk berbagai korporasi dan Lembaga pemerintahan di Indonesia. Selain itu, Dia juga terlibat aktif melakukan kegiatan pendampingan masyarakat, kelompok usaha mikro, dan pelaku usaha sosial yang dikelola oleh berbagai organisasi nirlaba seperti PLUS Indonesia, EcoNusa Foundation, Dompet Dhuafa, Wahana Visi Indonesia, Gerakan Indonesia Mengajar, Yayasan Sabang Merauke, dan beberapa komunitas masyarakat lainnya.

Untuk menjalankan studi S3, Noveri memperoleh beasiswa pendidikan doktoral dari LPDP RI dan juga dukungan program tugas belajar dari PPM Manajemen, tempat Dia bernaung. Selama menjalankan pendidikan doktoral ini, Noveri telah menghasilkan beberapa luaran karya ilmiah, sebagai berikut:

1) Publikasi artikel ilmiah pada *Jurnal Sustainability*, terindeks Scopus Q1 dan Web of Science kategori SSCI, terbit edisi November 2022
2) Publikasi artikel ilmiah pada Jurnal *"Marketing & Management: Challenges for Knowledge Society",* terindeks Scopus Q2 dan Web of Science kategori ESCI, terbit edisi November 2020
3) Meraih predikat sebagai *"Best Presenter in Social Science Track"* pada International Conference ITTP-COVID-19, tertanggal 8 Agustus 2022, yang diselenggarakan oleh FKM UI, UTM Malaysia, dan ASEAN University Network.
4) Serta juga akan mempresentasikan hasil risetnya pada *"International Conference on Tourism Science* (ICTS 2023)" yang diselenggarakan oleh Kanazawa University, Japan, pada Maret 2023 mendatang.
5) Selain itu, selama melaksanakan pendidikan doktoral ini, Noveri juga telah mempublikasikan lima artikel ilmiah lainnya pada jurnal nasional terindeks SINTA 2 hingga SINTA 5 dan juga telah menulis berapa artikel populer di media massa nasional.

Selain aktif di kegiatan akademis dan pengabdian kepada masyarakat, Noveri juga aktif pada beberapa organisasi sosial kemasyarakatan. Noveri terlibat aktif di Perkumpulan Pariwisata Halal Indonesia, serta turut aktif dalam beberapa komunitas Masyarakat Minangkabau di Jakarta.

Setelah menyelesaikan studi doktoral ini, Noveri berkomitmen untuk berbagi ilmu dan pengetahuannya agar dapat bermanfaat secara luas bagi komunitas masyarakat, lembaga pemerintahan, korporasi nasional dan internasional, serta juga tetap menekuni profesi sebagai seorang dosen yang mengajar pada program Sarjana dan Magister Manajemen.

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