The 3rd ASEAN School of Business Network International Conference 2026
www.aseansbn.org August 6-7, 2026 Pathum Thani, Thailand

Tracking Tourists' Risk Perception on Behavioral Intentions: The Mediated-Moderation of Psychological Risk

Muafi Muafi [1]*, Hendy Mustiko Aji[2], Fatimah Az Zahra[3]
[1,] Department of Management Science, Universitas Islam Indonesia, Indonesia

*Corresponding Author: muafi@uii.ac.id

ABSTRACT

This study aims to investigate the role of sanitary risk and perceived travel risk on tourists' behavioral intentions to travel with psychological risk as mediation and moderation. This study uses perceived risk theory to explain the relationships. A quantitative approach was employed, collecting data from 133 tourists in Indonesia using purposive sampling and an online survey. The data obtained is analyzed using Structural Equation Modeling with Partial Least Square. The results of this study reveal that sanitary risk and perceived travel risk influence tourists' behavioral intentions. Furthermore, this study also confirms that the higher the risk perception, the lower the tourist's behavioral intention to travel. It is also found that psychological risk can strengthen and weaken tourists' intentions to travel. The implications of this study are important for both scholars and policy makers to better understand and predict future tourist behavior, as well as for transportation and hospitality service providers to manage and mitigate perceived risks.

Keywords: Perceived Risk, Sanitary Risk, Perceived Travel Risk, Psychological Risk, Tourist Behavioral Intentions

DOI: https://doi.org/10.64458/asbnic.v3.136

INTRODUCTION

Indonesia, as an archipelago country in Southeast Asia, offers abundant natural attractions that continue to draw both domestic and international tourists (Jeyacheya & Hampton, 2020). Natural landscapes, cultural uniqueness, and outdoor activities such as camping, hiking, and trekking provide authentic experiences that appeal to diverse traveler segment (Gu et al., 2021; Sandbrook & Semple, 2006). At the same time, tourism remains highly sensitive to risk perceptions, particularly those related to health, safety, and the environment (Reisinger & Mavondo, 2005; Simpson & Siguaw, 2008). Such risks often reduce travelers' behavioral intentions, making risk perception a central issue in tourism research.

While previous studies have established that heightened perceptions of risk lower travel intentions, more recent evidence suggests that risk does not always deter travel. Phenomena such as "revenge travel" illustrate that some tourists continue to travel despite perceiving risks, highlighting the importance of psychological and motivational factors in shaping behavior (Sujood et al., 2022). Moreover, social media and digital platforms increasingly shape how travelers, especially younger generations, interpret and respond to perceived risks by providing real-time information on safety and sanitary

conditions (Tuclea et al., 2020). These digital platforms not only help reduce uncertainty but also influence how different demographic groups, particularly younger travelers, evaluate and respond to perceived risks.

This study focuses on university students, who predominantly belong to Generation Z. Although not traditionally regarded as a high-spending tourist segment, they represent the future of the tourism market and are critical to understand for long-term destination strategies. Gen Z is highly engaged with digital platforms, values novel experiences, and is often more willing to accept uncertainties compared to older cohorts (Corbisiero et al., 2022; Yamagishi et al., 2024). However, this group is also marked by heightened psychological vulnerability, particularly in the aftermath of the COVID- At the same time, they also exhibit psychological vulnerability, including heightened sensitivity to uncertainty and health-related risks (Morrone et al., 2024). Despite this duality, empirical research on Gen Z's psychological risk perceptions and their effect on travel intentions remains limited. By examining this group, the study responds to calls for more age-specific analyses of travel risk and behavioral intention.

Tourist behavioral intentions have often been examined using the Theory of Planned Behavior (TPB) (Ajzen & Madden, 1986). While TPB highlights the role of attitudes, subjective norms, and perceived behavioral control in predicting behavior, it pays limited attention to perceived risk as a determinant (Roehl & Fesenmaier, 1992; Mitchell, 1999). Recent studies demonstrate that risk perceptions, including sanitary, environmental, and psychological risks, play an increasingly important role in shaping intention (Joo et al., 2021; Matiza & Slabbert, 2021). As stated by Rather et al. (2022) and Teeroovengadum et al. (2021), a decrease in one's intentions is closely related to perceived risk, especially when tourists do not have enough information. Issues regarding the environment, unstable weather, and the safety of tourist attractions have become considerations for tourists before deciding to travel.

Sujood et al. (2022) stated that a person's involvement in a behavior can be determined by his intentions. This can refer to motivational factors, where the greater a person's intention to carry out, the greater the possibility of carrying out that behavior. In the context of this study, tourist behavioral intentions are understood as the intention to undertake a trip with the various risks it faces (Reisinger & Crotts, 2009). Therefore, as a country rich in natural attractions that continue to draw both local and international tourists, Indonesia serves as a relevant context to explore how perceived risks shape tourists' behavioral intentions.

This study addresses these gaps by applying perceived risk theory to examine how sanitary risk and perceived travel risk affect tourists' behavioral intentions, with psychological risk considered both as a mediator and a moderator. By focusing on Gen Z university students in Indonesia, the research contributes new insights into the nuanced role of psychological risk in shaping travel behavior among younger travelers. These findings are expected to enrich the literature on tourism risk perception and provide practical implications for destination managers, policymakers, and service providers seeking to design strategies that account for evolving risk sensitivities in the tourism market.

LITERATURE REVIEW

Perceived Risk Theory

Perceived risk refers to the uncertainty individuals face when making decisions (Knight, 1948; Mitchell, 1999), including during consumption and travel. In marketing, perceived risk reflects a consumer's subjective belief about uncertainty when purchasing a product or service (Haddock, 1993). In the tourism context, perceived risks can create negative perceptions of a destination and influence tourists' behavioral intentions (Sonmez & Graefe, 1998; Khan et al., 2017). Tourism risks encompass various dimensions such as psychological, personal, financial, social, time, satisfaction, and health risks (Sonmez & Graefe, 1998; Hwang & Choe, 2019). Particularly, sanitary risk and psychological risk are relevant in shaping post-pandemic travel intentions (Rather et al., 2022; Sujood et al., 2022). While risk perception is often product-related (Koay et al., 2023), in tourism, it arises from multidimensional concerns (Kim et al.,

2016), including health safety and destination uncertainty. This study focuses on sanitary risk as a predictor of travel intention, with psychological risk acting as both mediator and moderator, following Hayes' (2022) conditional process framework. Understanding these risks is crucial because complete and reliable destination information may reduce perceived risks and improve tourists' willingness to travel.

Travel Consumer Behavior and Travel Intention

Understanding tourist behavioral intention is critical in predicting whether individuals will travel, especially in uncertain conditions. Theory of Planned Behavior (TPB) is one of the most widely used theories to explain consumer behavior, including travel decisions (Ajzen & Madden, 1986). According to TPB, behavioral intention is determined by attitude toward the behavior, subjective norms, and perceived behavioral control, reflecting how favorable individuals feel about traveling, social pressures, and their control over the behavior. In tourism studies, TPB has been successfully applied to predict tourists' intentions based on their attitudes toward destinations, influence from social circles, and perceived ease or difficulty in traveling. However, TPB has limitations in fully explaining tourists' decisions under risky or uncertain circumstances, as it does not explicitly account for perceived risks (Roehl & Fesenmaier, 1992; Mitchell, 1999).

Recent studies emphasize that perceived risks, including health and safety concerns, have become key determinants of travel intention, especially after global crises like COVID-19 (Rather et al., 2022; Sujood et al., 2022). For example, even if tourists hold positive attitudes toward traveling, heightened perceptions of sanitary or psychological risk can reduce their intention to travel (Bae & Chang, 2021; Teeroovengadum et al., 2021). Thus, while TPB provides a strong foundation for understanding travel behavior, integrating perceived risk theory allows for a more comprehensive explanation of tourists' behavioral intentions, particularly under health-related uncertainties. This study extends existing frameworks by focusing on how sanitary and psychological risks shape tourists' intentions, recognizing that consumer behavior in tourism is influenced not only by personal attitudes and social factors but also by risk assessments associated with the destination and travel process.

Hypothesis Development

Sanitary Risk and Tourists' Behavioral Intention

Perceived risk has long been considered a critical factor in shaping individual decision-making, particularly in situations involving uncertainty (Mitchell, 1999). In the tourism context, sanitary risk refers to a tourist's perception of the health and safety dangers present at a destination (Asgary & Ozdemir, 2020). This risk reflects concerns about the possibility of being exposed to diseases, poor hygiene, and inadequate safety standards, which can ultimately discourage tourists from visiting certain destinations. The Perceived Risk Theory suggests that when individuals perceive high uncertainty and potential danger, they tend to avoid engaging in that activity (Knight, 1948; Mitchell, 1999). This applies to tourism, where perceived sanitary risks significantly influence a tourist's evaluation of whether a destination is safe to visit (Cui et al., 2016). Several studies have confirmed that health-related risks are among the strongest predictors of reduced travel intentions, particularly in the wake of health crises or pandemics (Sánchez-Cañizares et al., 2021; Steiger et al., 2022).

Furthermore, when tourists lack sufficient information about health measures at a destination, their anxiety and perception of danger increase, resulting in lower behavioral intention (Holm et al., 2017). When perceived anxiety and risks are high, individuals are likely to avoid such situations to maintain a sense of safety. Likewise, Teeroovengadum et al. (2021) argue that tourists may avoid destinations known to attract large crowds, as this can elevate the perceived sanitary risk and reduce their willingness to visit. Safety and sanitation are critical for attracting tourists and that concerns about safety can easily turn into avoidance behaviors. Hence, when tourists perceive that a destination poses

health-related threats, their likelihood of visiting the destination declines. Therefore, this study proposes the following hypothesis:

H1. *Sanitary risk negatively influences tourists' behavioral intentions.*

Perceived Travel Risk and Tourists' Behavioral Intention

In the tourism context, perceived travel risk reflects tourists' overall assessment of potential threats or negative outcomes that may arise during travel (Roehl & Fesenmaier, 1992). This risk is broader than sanitary risk and includes multiple dimensions (Simpson & Siguaw, 2008). Tourists often evaluate whether visiting a destination will expose them to these risks, which ultimately influences their behavioral intentions (Abraham et al., 2020). Building on Perceived Risk Theory, when travelers perceive a high level of risk, they tend to avoid engaging in travel as a protective mechanism (Mitchell, 1999). Empirical evidence shows that travel risk significantly reduces tourists' behavioral intentions, especially when risks are associated with safety, health, or financial loss (Aziz & Long, 2022; Khan et al., 2020; Jarumaneerat, 2022). For instance, Teeroovengadum et al. (2021) categorized travel risks into three main types—health, financial, and socio-cultural—and found that all three dimensions can negatively affect tourists' decisions to travel.

Furthermore, studies have shown that tourists who perceive high levels of travel risk are likely to experience higher anxiety, discomfort, and reluctance to travel, compared to those who perceive lower levels of risk (Aziz & Long, 2022; Khan et al., 2020). This is especially true when considering destinations with uncertain political conditions, ongoing health crises, or limited healthcare infrastructure, which can amplify perceived risks (Rather et al., 2022). Although some studies have emphasized that certain types of risks might not fully deter travel under specific circumstances, in general, higher perceived travel risk reduces tourists' likelihood of visiting a destination (Sujood et al., 2022; Tsaur et al., 1997). Hence, this study proposes the following hypothesis:

H2. *Perceived travel risk negatively influences tourists' behavioral intention*

Psychological Risk

Psychological risk refers to the anxiety, worry, or discomfort an individual may experience when their decisions are perceived as conflicting with their self-image or personal expectations (Yang & Nair, 2014; Sánchez-Cañizares et al., 2021). In tourism, psychological risk emerges when travelers are unsure whether a destination will meet their safety and emotional comfort needs, especially under uncertain conditions. Prior studies have shown that psychological risks can undermine tourists' confidence and lower their intention to travel (Rather et al., 2022). In the context of sanitary risk, tourists may initially assess health and safety conditions, but their final decision to travel may also depend on how these risks make them feel emotionally and psychologically. Tourists who perceive high sanitary risks may experience heightened psychological discomfort, which in turn reduces their intention to travel. Therefore, psychological risk may act as a mediating variable that explains how sanitary risks influence tourists' behavioral intentions (Yang & Nair, 2014; Tsaur et al., 1997). Hence, this study proposes the following hypothesis:

H3. *Psychological risk mediates the negative influence of sanitary risk on tourists' behavioral intention*

In addition to its mediating role, psychological risk may also act as a moderator that influences how sanitary risk affects tourists' behavioral intentions. Previous studies have shown that tourists' psychological responses, such as anxiety, worry, and fear, play a crucial role in shaping their travel decisions (Sánchez-Cañizares et al., 2021; Wang et al., 2020). When psychological risk is high, tourists may perceive sanitary risks as more threatening, thereby strengthening the negative impact of sanitary risk on their intention to travel. Conversely, when psychological risk is low, the effect of sanitary risk on

behavioral intention may be weakened. This moderating effect reflects the dynamic interaction between external risks (e.g., health-related or sanitary risks) and internal psychological factors that influence decision-making (Zheng et al., 2021). Therefore, psychological risk is expected to amplify or attenuate the relationship between sanitary risk and tourists' behavioral intention. Based on this reasoning, the following hypothesis is proposed:

H4. *Psychological risk moderates the influence of sanitary risk on tourists' behavioral intention*

The research model is presented in Figure 1.

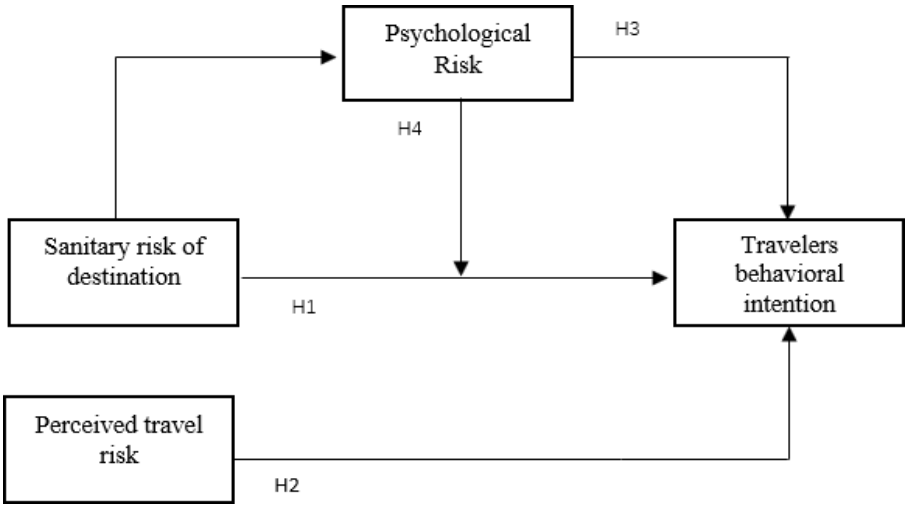


Figure 1. Research model

METHOD

Research Design and Sampling Procedure

This study employs a quantitative approach using an online survey method to test the proposed hypotheses. The target population of this study is young Indonesian tourists, specifically Generation Z (Gen Z), who are considered a high-potential market segment for the tourism industry in Indonesia. Gen Z is chosen because they represent the dominant age group engaging in tourism activities and are highly exposed to digital information influencing risk perception and travel decisions. The sample is selected using purposive sampling to ensure the respondents meet specific criteria relevant to the research objective, namely: (1) individuals belonging to Generation Z (aged 18–27), (2) currently university students, and (3) having the intention to travel within the short or medium term. The use of purposive sampling is appropriate as it allows focusing on respondents who are actively involved in travel-related decision-making and exposed to current tourism risks, which aligns with the study context.

The data for this study were collected between December 2023 and March 2024 using an online survey distributed through multiple digital platforms. The survey was designed using Google Forms and included screening questions to ensure that participants fit the defined criteria (e.g., being part of Generation Z, currently studying at a university, and having an interest or plan to travel in the near future). To encourage participation, collaboration was established with student organizations, who helped distribute the survey link to a broader student network in major cities in Indonesia such as Jakarta, Yogyakarta, Bandung, and Surabaya. These cities were selected as they represent urban centers with high concentrations of young people who are active travelers, which aligns with the study's focus on travel intentions among Gen Z. A total of 140 responses were collected initially. After data screening, 7 incomplete or invalid responses (e.g., missing data, inconsistent answers) were removed, resulting in a final sample of 133 valid responses used for analysis. This sample size aligns with the minimum threshold for PLS-SEM analysis, which is 100-150 samples in models with multiple relationships (Hair et al., 2019).

Prior to data collection, this study obtained ethical approval from the university's research ethics committee. All participants were provided with an informed consent form at the beginning of the survey, which clearly outlined the purpose of the study, the voluntary nature of participation, and assurances of anonymity and confidentiality. Only respondents who agreed to these terms were allowed to proceed with the questionnaire.

Common Method Bias

Given that data were collected through a self-reported survey, potential common method bias (CMB) was addressed by ensuring anonymity and confidentiality of responses to reduce social desirability bias. Additionally, procedural remedies such as randomizing item orders were applied. To assess CMB statistically, Harman's single factor test was conducted, and the result indicates that no single factor accounts for more than 50% of the total variance, suggesting that CMB is not a significant issue in this study.

Measurement and Constructs

All measurement items were adapted from validated previous studies, using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) to ensure consistency in responses.

1. Tourists' Behavioral Intention (TBI):
   Refers to the psychological state indicating a tourist's willingness to engage in travel behaviors. Three items were adapted from Hsu & Huang (2012b) and Sánchez-Cañizares et al. (2021), focusing on the intention to visit, willingness to recommend, and readiness to plan a trip.
2. Sanitary Risk (SR):
   Refers to the perceived health and safety risks associated with visiting a tourist destination. Three items were adapted from Cui et al. (2016), capturing dimensions such as fear of disease transmission, perceived cleanliness, and safety concerns of a destination.
3. Perceived Travel Risk (PTR):
   Represents the general risk perception associated with traveling, including various uncertainties that tourists may consider when planning a trip. Adapted from Roehl & Fesenmaier (1992) with three items, including financial risk, socio-cultural risk, and health risk dimensions that might deter tourists from traveling.
4. Psychological Risk (PR):
   Defined as internal discomfort or conflict with self-image that arises from travel decisions. Three items were adapted from Sujood et al. (2022), capturing dimensions such as concern about regret, worry about negative consequences, and anxiety about travel decisions.

RESULTS

Data were analyzed with partial least squares with structural equation modeling (PLS-SEM) using SmartPLS v.3.2.8. According to Hair et al. (2019) PLS-SEM has several advantages, as it is suitable for research with complex models. In addition, the latent construct scores resulting from the PLS algorithm can be used in further analysis. Recent marketing studies (e.g., Cheung et al., 2021b; Koay et al., 2021; Lau et al., 2019) have adopted PLS-SEM to analyze the data in two stages, namely assessing (1) the measurement (outer) model and (2) structural (inner) model (Hair et al., 2019).

Table 1. Characteristics of respondents

	Respondents	Total	Percentage
Gender	Male	72	54%
	Female	61	46%

Respondents		Total	Percentage
Age	18 – 21 years old	42	32%
	22 – 25 years old	48	36%
	26 – 30 years old	43	32%
City	Bandung	22	17%
	Bekasi	10	8%
	Depok	11	8%
	Jakarta	17	13%
	Makassar	11	8%
	Medan	15	11%
	Palembang	14	11%
	Semarang	6	5%
	Surabaya	12	9%
	Tangerang	15	11%
Income per Month	< Rp 3.000.000	24	18%
	Rp 3.000.000 – Rp 5.000.000	48	36%
	Rp 5.100.000 – Rp 7.000.000	32	24%
	> Rp 7.000.000	29	22%

Descriptive Statistics

Before testing the hypotheses, descriptive statistics of all key variables were calculated. The mean and standard deviation (SD) of each construct are presented in Table 2.

Table 2. Descriptive Statistics

Variable	Mean	Standard Deviation
Sanitary Risk	3.85	0.62
Perceived Travel Risk	3.72	0.68
Psychological Risk	3.90	0.59
Tourists' Behavioral Intention	4.10	0.55

Table 2 indicates that, on average, respondents perceive relatively high levels of sanitary and psychological risks, but also demonstrate moderately high behavioral intentions to travel. The descriptive results indicate that most items have relatively low standard deviation values, averaging around 0.6. This suggests a high level of agreement or homogeneity among respondents, which is expected given that the sample consists of university students with similar backgrounds and exposures.

Reliability and Validity in Measurement Models

Before conducting structural model analysis, the measurement model is tested for reliability with Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The Cronbach's Alpha and Composite Reliability values must be greater than 0.7, while the AVE value must be greater than 0.5 (Fornell and Larcker, 1981; Chin, 1998). Table 3 is a tabulation of the test results. The minimum test values are: Cronbach's Alpha (0.703), Composite Reliability (0.839), and AVE (0.641), these values meet the requirements, thus it can be concluded that there is reliability in all constructs.

Table 3. Construct Reliability

Construct		Item	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE
Perceived Travel Risk	PTR1	I believe traveling involves financial risks (e.g., unexpected expenses or loss of money).	0.735	0.815	0.889	0.729
	PTR2	I feel uncertain about potential social or cultural challenges when traveling.	0.935			
	PTR3	I worry about health risks associated with traveling.	0.879			
Psychological Risk	PR1	I am concerned that I might regret my decision to travel.	0.726	0.781	0.871	0.694
	PR2	I feel anxious about the possible negative consequences of traveling.	0.854			
	PR3	I worry that traveling may create internal conflict or discomfort.	0.909			
Sanitary Risk	SRD1	I am concerned about the risk of disease transmission when visiting a destination.	0.809	0.804	0.885	0.721
	SRD2	I worry about the cleanliness and hygiene standards at tourist destinations.	0.929			
	SRD3	I perceive visiting tourist destinations as risky due to health and safety concerns.	0.804			
Traveler's Behavioral Intention	TBI1	I intend to visit a tourist destination in the near future.	0.709	0.703	0.839	0.641
	TBI2	I am willing to recommend traveling to others.	0.915			
	TBI3	I am ready to make plans for a future trip.	0.845			

Discriminant validity is examined by comparing the square root of the AVE to the correlation between constructs (Fornell and Larcker, 1981). As shown in Table 3, all values of the square root of AVE are greater than the correlation values between constructs (Fornell and Larcker, 1981). Another alternative to test discriminant validity is by examining the Heterotrait-Monotrait Ratio (HTMT) correlation ratio (Henseler et al., 2014). From the test results, all HTMT values shown in Table 4 are below the threshold of 0.85, thus indicating satisfactory discriminant validity of the measurement model.

Table 4. Fornell-Larcker Criterion and HTMT

	Fornell-Larcker Criterion					Heterotrait-Monotrait Ratio (HTMT)			
	PTR	**PR**	**SRD**	**TBI**		**PTR**	**PR**	**SRD**	**TBI**
PTR	0.854				**PTR**				
PR	0.808	0.833			**PR**	0.748			
SRD	0.733	0.816	0.849		**SRD**	0.817	0.639		
TBI	0.546	0.454	0.523	0.801	**TBI**	0.702	0.599	0.690	

Hypothesis Testing

The structural model analysis was conducted to examine the proposed hypotheses. Table 5 presents the path coefficients, t-statistics, p-values, and the conclusion for each hypothesis.

Table 5. Path Coefficient and Hypothesis Testing Results

Path	β	Sample Mean	Std. Deviation	t-statistics	p-values	Support
SRD → TBI (H1)	-0.371	-0.346	0.165	2.250	0.025	Yes
PTR → TBI (H2)	-0.347	-0.358	0.156	2.875	0.004	Yes
SRD → PR → TBI (H3)	-0.505	-0.490	0.139	3.644	0.000	Yes
SRD x PR → TBI (H4)	-0.419	-0.434	0.050	8.318	0.000	Yes

Based on the results, sanitary risk has a negative and significant effect on tourists' behavioral intention (β = -0.371, t = 2.250, p = 0.025). This indicates that an increase in perceived sanitary risk is associated with a decrease in the intention to travel. Thus, H1 is supported. Perceived travel risk is found to have a negative and significant effect on tourists' behavioral intention (β = -0.347, t = 2.875, p = 0.004). This result shows that higher perceived travel risk is associated with lower travel intention in this sample. Therefore, H2 is supported. Furthermore, psychological risk is confirmed as a mediating variable in the relationship between sanitary risk and tourists' behavioral intention (β = -0.505, t = 3.644, p = 0.000). This result means that sanitary risk influences tourists' behavioral intention indirectly through psychological risk, supporting H3. Lastly, psychological risk is also found to moderate the relationship between sanitary risk and tourists' behavioral intention (β = -0.419, t = 8.318, p = 0.000). This finding indicates that the effect of sanitary risk on behavioral intention depends on the level of psychological risk. H4 is supported.

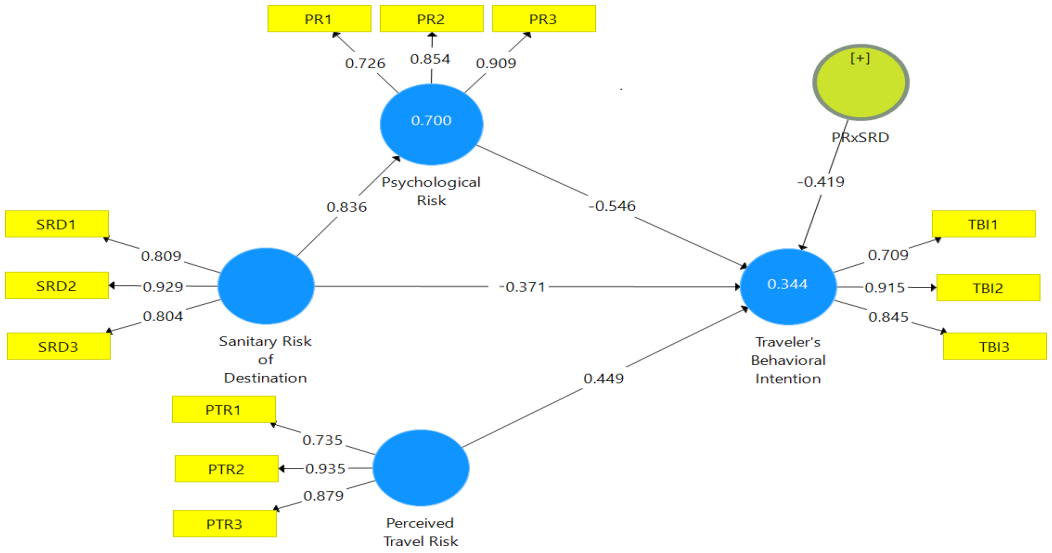


Figure 2. Path coefficient model

In addition, Figure 3 below illustrates the moderating effect of psychological risk, showing that when psychological risk is low, the negative effect of sanitary risk on behavioral intention becomes weaker, whereas at higher psychological risk, the negative relationship becomes stronger.

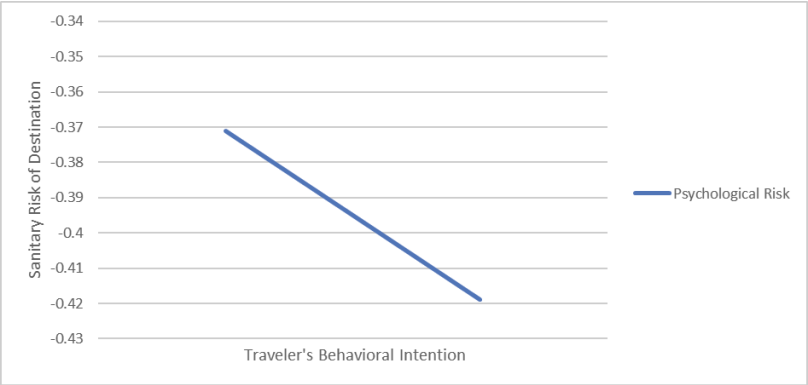


Figure 3. Interaction of Psychological Risk and Sanitary Risk on Tourists' Behavioral Intention

Discussion

This study aims to understand the factors influencing tourists' behavioral intentions by examining various forms of perceived risk—namely, sanitary risk, perceived travel risk, and psychological risk—in a sample of university students. The findings provide empirical evidence that risk perception remains a critical determinant in travel decision-making, particularly among younger tourists navigating the post-pandemic tourism landscape.

Sanitary risk was found to have a significant and negative influence on tourists' behavioral intentions, supporting prior research that links hygiene-related concerns to decreased travel motivation (Asgary & Ozdemir, 2020; Teeroovengadum et al., 2021). In the aftermath of global health crises, such concerns continue to play a prominent role in shaping travel choices. For Gen Z university students, who are often highly exposed to health-related messaging and risk narratives through social media and online communities, sanitary concerns may be particularly salient (Morrone et al., 2024). The long-term psychological imprint of the pandemic has heightened sensitivity to cleanliness and health protocols, making destinations perceived as unsanitary less attractive, even to typically adventurous younger tourists (Rončák et al., 2021). Similar concerns have also been documented in developed countries.

Perceived travel risk also negatively affects behavioral intentions, though its impact appears more complex than that of sanitary risk. While sanitary risk may evoke a more immediate emotional response, perceived travel risk is often weighed against the purpose and perceived value of the trip. This is consistent with Aro et al. (2009), who found that some tourists, particularly those with specific motivations such as business, relaxation, or academic obligations, may downplay perceived travel risks. Among university students, this could reflect a tendency to rationalize risk based on opportunity cost—especially if the trip fulfills academic, professional, or personal goals (Dragin et al., 2022). These findings highlight that different dimensions of risk perception operate through distinct psychological and motivational pathways. This echoes global findings from Luo and Lam (2020), who observed that U.S. travelers also prioritized personal relevance and goal fulfillment over generalized travel anxieties, underscoring how motivational trade-offs influence decision-making across contexts.

A key contribution of this study lies in its examination of psychological risk as both a mediator and moderator. The mediating role of psychological risk in the relationship between sanitary risk and behavioral intention supports the view that internal emotional responses shape how external risks are processed (Sujood et al., 2022). In this case, concerns about sanitation lead to elevated psychological discomfort or anxiety, which in turn dampens the intention to travel. This is especially relevant in younger cohorts like university students, who may exhibit heightened emotional responsiveness or risk sensitivity due to ongoing identity development, peer influence, and increased exposure to risk-related

information (Li & Huang, 2022; Morrone et al., 2024). The study thus reinforces that risk perception is not solely a rational evaluation of external threats, but is also deeply rooted in emotional and cognitive responses. Comparable patterns have been noted in Japan and South Korea, where studies show that younger travelers' psychological distress during post-pandemic recovery phases significantly shaped travel withdrawal behaviors (Kim et al., 2016; Morrone et al., 2024).

Beyond its mediating effect, psychological risk also moderates the relationship between sanitary risk and travel intention. Specifically, the impact of sanitary risk is attenuated among individuals with lower psychological risk and amplified among those with higher psychological sensitivity. These findings align with Hsu & Huang (2012a), who emphasize the role of psychological traits in shaping travel behavior. In the current context, psychological resilience appears to serve as a buffer, enabling some students to maintain travel intentions despite sanitary concerns. For more vulnerable individuals, however, even minor sanitary cues may trigger significant declines in interest or willingness to travel (Rončák et al., 2021; Dragin et al., 2022). This is in line with research in Western contexts, where scholars have pointed out that post-pandemic tourists with lower psychological resilience, especially among younger cohorts, tend to avoid travel altogether or opt for low-risk, domestic alternatives (Dragin et al., 2022). Given that mental health concerns are particularly pronounced among Gen Z and university students, the moderating effect of psychological risk has both theoretical and practical significance.

Overall, this study contributes to the literature in several meaningful ways. It reaffirms the direct negative impact of sanitary and travel risks on behavioral intention while simultaneously demonstrating the dual role of psychological risk in mediating and moderating these relationships. While prior studies have examined perceived risks in isolation, few have simultaneously addressed their interdependencies and psychological underpinnings. By highlighting these mechanisms within a university student population, a group that will form a significant segment of the post-pandemic tourism market, this study offers nuanced insights into how different types of risks interact to influence travel decisions. These findings resonate across global settings, as younger travelers in both developed and developing nations appear increasingly cautious, emotionally attuned, and hygiene-aware, thus reshaping the future landscape of international tourism.

CONCLUSION

Conclusion

This study examined how perceived risks shape tourists' behavioral intentions by analyzing sanitary risk, perceived travel risk, and psychological risk as both a mediator and moderator. The findings highlight that perceived risk is a critical determinant of tourists' willingness to travel: destinations perceived as unsafe or anxiety-inducing reduce travel intentions. The results also show that psychological risk plays a dual role in mediating and moderating the influence of perceived risks on behavioral intentions. These findings underscore the importance of contextual factors, as illustrated by the Indonesian sample, where socio-cultural conditions and varying travel habits influence behavioral outcomes. Overall, the study contributes to the literature by emphasizing the multidimensional nature of risk and clarifying the role of psychological risk in travel decision-making.

Practical Implications

The findings provide important implications for tourism stakeholders, including policymakers, marketers, and service providers. Since perceived risks, particularly sanitary and psychological risks, significantly influence tourist behavior, efforts should extend beyond promotional campaigns to rebuilding trust and confidence in travel safety. Service providers can reduce sanitary risk perception by implementing and clearly communicating standardized hygiene protocols, such as visible disinfection schedules, contactless services, and staff hygiene certifications. Transparent display of hygiene ratings at accommodations and tourist sites can further reassure visitors. Marketers should highlight these practices through social media campaigns, behind-the-scenes content, and influencer partnerships.

Addressing psychological risk requires strategies that emphasize reassurance and comfort. Campaigns can incorporate traveler testimonials, calming imagery, and messages of psychological well-being, such as "travel with peace of mind." Training frontline staff in empathy and emotional support can also reinforce these efforts. At the policy level, authorities may introduce verified safety certification programs for tourism businesses and collaborate with health institutions to provide accessible, transparent updates on regional safety conditions. Together, these initiatives can help reduce uncertainty and foster greater confidence among potential travelers.

Limitations

This study has several limitations. First, the sample consisted of Indonesian university students from Generation Z, a group that does not fully represent the broader tourist population. While Gen Z is important as a future market segment, they are not yet a dominant consumer group in terms of spending power or destination preferences. This limits the generalizability of the findings to other traveler segments. Second, the study focuses only on sanitary risk, perceived travel risk, and psychological risk, excluding other dimensions such as financial, political, or environmental risks. Third, reliance on self-reported data introduces the possibility of response bias, as participants may have provided socially desirable answers rather than fully accurate reflections of their behavior. In addition, the low variability in responses (standard deviations clustered around 0.6) reflects the homogeneity of the sample, which may reduce the ability to detect more nuanced relationships. Finally, because the study captures a single point in time, it does not account for evolving risk perceptions that may shift in response to broader global or local events.

Suggestions for Future Research

Future studies should expand beyond university students to include travelers from diverse age groups, income levels, and cultural backgrounds to provide a more representative picture of travel behavior. Comparative studies could examine whether younger cohorts, such as Gen Z, differ significantly from older generations in how they evaluate and respond to risk. This would clarify whether the findings reported here are unique to younger travelers or generalizable across the wider tourism market. In addition, future research could extend the model to include other forms of perceived risk, such as financial, political, or personal security risks, to offer a more comprehensive understanding of travel decision-making. Methodological advances could also enhance insights. Longitudinal studies are recommended to track how risk perceptions evolve over time, especially in response to crises or external shocks. Mixed-method approaches, including in-depth interviews or focus groups, may help uncover the underlying psychological mechanisms driving risk perception, while experimental designs could test interventions aimed at reducing perceived risks. By addressing these avenues, future research can build on this study's initial insights while providing more robust, generalizable knowledge for both theory and practice

REFERENCES

Abraham, V., Bremser, K., Carreno, M., Crowley-Cyr, L., & Moreno, M. (2020). Exploring the consequences of COVID-19 on tourist behaviors: perceived travel risk, animosity and intentions to travel. Tourism Review, 76(4). https://doi.org/10.1108/TR-07-2020-0344

Ajzen, I. (1991). The theory of planned behavior. Handbook of Theories of Social Psychology: Volume1, 438–459. https://doi.org/10.4135/9781446249215.n22

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. Journal of Experimental Social Psychology, 22(5). https://doi.org/10.1016/0022-1031(86)90045-4

Anele, K. K. (2021). Assessing the impact of COVID-19 on the Indonesian tourism industry. Journal of Indonesian Tourism, Hospitality and Recreation, 4(2). https://doi.org/10.17509/jithor.v4i2.34393

Asgary, A., & Ozdemir, A. I. (2020). Global risks and tourism industry in Turkey. Quality and Quantity, 54(5–6). https://doi.org/10.1007/s11135-019-00902- 9

Aziz, N. A., & Long, F. (2022). To travel, or not to travel? The impacts of travel constraints and perceived travel risk on travel intention among Malaysian tourists amid the COVID-19. Journal of Consumer Behaviour, 21(2). https://doi.org/10.1002/cb.2008

Bae, S. Y., & Chang, P. J. (2021). The effect of coronavirus disease-19 (COVID-19) risk perception on behavioural intention towards 'untact' tourism in South Korea during the first wave of the pandemic (March 2020). Current Issues in Tourism, 24(7). https://doi.org/10.1080/13683500.2020.1798895

Cui, F., Liu, Y., Chang, Y., Duan, J., & Li, J. (2016). An overview of tourism risk perception. Natural Hazards, 82(1). https://doi.org/10.1007/s11069-016- 2208-1

Corbisiero, F., Monaco, S., & Ruspini, E. (2022). Millennials, Generation Z and the future of tourism (Vol. 7). Channel View Publications.

Dragin, A. S., Majstorović, N., Janičić, B., Mijatov, M. B., & Stojanović, V. (2022). Clusters of Generation Z and Travel Risks Perception: Constraining vs. Push–Pull Factors. In The Emerald Handbook of Destination Recovery in Tourism and Hospitality (pp. 375-395). Emerald Publishing Limited.

Gu, Q., Zhang, H., Huang, S. (Sam), Zheng, F., & Chen, C. (2021). Tourists' spatiotemporal behaviors in an emerging wine region: A time-geography perspective. Journal of Destination Marketing and Management, 19. https://doi.org/10.1016/j.jdmm.2020.100513

Haddock, C. (1993). Managing risks in outdoor activities. Building works Wellington.

Hayes, A. F. (2022). Introduction to Mediation, Moderation, and Conditional Process Analysis.

Holm, M. R., Lugosi, P., Croes, R. R., & Torres, E. N. (2017). Risk-tourism, risk-taking and subjective well-being: A review and synthesis. In Tourism Management (Vol. 63). https://doi.org/10.1016/j.tourman.2017.06.004

Hsu, C. H. C., & Huang, S. (2012). An Extension of the Theory of Planned Behavior Model for Tourists. Journal of Hospitality and Tourism Research, 36(3), 390–417. https://doi.org/10.1177/1096348010390817

Hwang, J., & Choe, J. Y. (Jacey). (2019). Exploring perceived risk in building successful drone food delivery services. International Journal of Contemporary Hospitality Management, 31(8). https://doi.org/10.1108/IJCHM-07-2018-0558

Jarumaneerat, T. (2022). Segmenting International Tourists Based on the Integration of Travel Risk Perceptions and Past Travel Experience. Journal of Quality Assurance in Hospitality and Tourism, 23(2). https://doi.org/10.1080/1528008X.2021.1891596

Jeyacheya, J., & Hampton, M. P. (2020). Wishful thinking or wise policy? Theorising tourism-led inclusive growth: Supply chains and host communities.

World Development, 131. https://doi.org/10.1016/j.worlddev.2020.104960

Joo, D., Xu, W., Lee, J., Lee, C. K., & Woosnam, K. M. (2021). Residents' perceived risk, emotional solidarity, and support for tourism amidst the COVID- 19 pandemic. Journal of Destination Marketing and Management, 19. https://doi.org/10.1016/j.jdmm.2021.100553

Khan, M. J., Chelliah, S., & Ahmed, S. (2017). Factors influencing destination image and visit intention among young women travellers: role of travel motivation, perceived risks, and travel constraints. Asia Pacific Journal of Tourism Research, 22(11). https://doi.org/10.1080/10941665.2017.1374985

Khan, M. J., Khan, F., Amin, S., & Chelliah, S. (2020). Perceived risks, travel constraints, and destination perception: A study on sub-saharan African medical travellers. Sustainability (Switzerland), 12(7). https://doi.org/10.3390/su12072807

Kim, H., Schroeder, A., & Pennington-Gray, L. (2016). Does culture influence risk perceptions? Tourism Review International, 20(1). https://doi.org/10.3727/154427216X14581596798942

Knight, F. H. (1948). Risk, Uncertainty, and Profit. 397.

Koay, K. Y., Cheung, M. L., Lom, H. S., & Leung, W. K. S. (2023). Perceived risk and second-hand clothing consumption: a moderated-moderation model.

Journal of Fashion Marketing and Management, July. https://doi.org/10.1108/JFMM-01-2023-0001

Li, C., & Huang, X. (2022). How does COVID-19 risk perception affect wellness tourist intention: Findings on Chinese generation Z. Sustainability, 15(1), 141.

MATIZA, T., & SLABBERT, E. (2021). Tourism is too dangerous! perceived risk and the subjective safety of tourism activity in the era of covid-19.

Geojournal of Tourism and Geosites, 36. https://doi.org/10.30892/GTG.362SPL04-686

Mitchell, V. (1999). Consumer perceived risk: conceptualisations and models. European Journal of Marketing, 33(1–2), 163–195. https://doi.org/10.1108/03090569910249229

Morrone, D., Tarulli, A., Silvestri, R., & Santovito, S. (2024). Generation Z, tourism and hospitality: the legacy of COVID-19. British Food Journal, 126(1), 205-222.

Rather, R. A., Parrey, S. H., Gulzar, R., & Rehman, S. ul. (2022). COVID-19-based threat vs coping appraisal: effect of psychological risk on customer engagement and behavioral intentions. Journal of Hospitality and Tourism Insights. https://doi.org/10.1108/JHTI-01-2022-0010

Reisinger, Y., & Crotts, J. C. (2009). The influence of gender on travel risk perceptions, safety, and travel intentions. Tourism Analysis, 14(6), 793–807. https://doi.org/10.3727/108354210X12645141401269

Reisinger, Y., & Mavondo, F. (2005). Travel anxiety and intentions to travel internationally: Implications of travel risk perception. Journal of Travel Research, 43(3), 212–225. https://doi.org/10.1177/0047287504272017

Roehl, W. S., & Fesenmaier, D. R. (1992). Risk Perceptions and Pleasure Travel: An Exploratory Analysis. Journal of Travel Research, 30(4), 17–26. https://doi.org/10.1177/004728759203000403

Rončák, M., Scholz, P., & Linderová, I. (2021). Safety concerns and travel behavior of generation Z: Case study from the Czech Republic. Sustainability, 13(23), 13439.

Sánchez-Cañizares, S. M., Cabeza-Ramírez, L. J., Muñoz-Fernández, G., & Fuentes-García, F. J. (2021). Impact of the perceived risk from Covid-19 on intention to travel. Current Issues in Tourism, 24(7), 970–984. https://doi.org/10.1080/13683500.2020.1829571

Sandbrook, C., & Semple, S. (2006). The rules and the reality of mountain gorilla Gorilla beringei beringei tracking: How close do tourists get? ORYX, 40(4). https://doi.org/10.1017/S0030605306001323

Simpson, P. M., & Siguaw, J. A. (2008). Perceived travel risks: The traveller perspective and manageability. International Journal of Tourism Research, 10(4), 315–327. https://doi.org/10.1002/jtr.664

Sonmez, S. F., & Graefe, A. R. (1998). Determining future travel behavior from past travel experience and perceptions of risk and safety. Journal of Travel Research, 37(2). https://doi.org/10.1177/004728759803700209

Steiger, R., Demiroglu, O. C., Pons, M., & Salim, E. (2022). Climate and carbon risk of tourism in Europe. Journal of Sustainable Tourism. https://doi.org/10.1080/09669582.2022.2163653

Sujood, N., Hamid, S., & Bano, N. (2022). Behavioral intention of traveling in the period of COVID-19: an application of the theory of planned behavior (TPB) and perceived risk. International Journal of Tourism Cities, 8(2), 357–378. https://doi.org/10.1108/IJTC-09-2020-0183

Teeroovengadum, V., Seetanah, B., Bindah, E., Pooloo, A., & Veerasawmy, I. (2021a). Minimising perceived travel risk in the aftermath of the COVID-19 pandemic to boost travel and tourism. Tourism Review, 76(4), 910–928. https://doi.org/10.1108/TR-05-2020-0195

Tsaur, S. H., Tzeng, G. H., & Wang, K. C. (1997). Evaluating tourist risks from fuzzy perspectives. In Annals of Tourism Research (Vol. 24, Issue 4). https://doi.org/10.1016/s0160-7383(97)00059-5

Tuclea, C. E., Vrânceanu, D. M., & Năstase, C. E. (2020). The role of social media in health safety evaluation of a tourism destination throughout the travel planning process. Sustainability (Switzerland), 12(16). https://doi.org/10.3390/su12166661

Wang, M., Jin, Z., Fan, S., Ju, X., & Xiao, X. (2020). Chinese residents' preferences and consuming intentions for hotels after COVID-19 pandemic: a theory of planned behaviour approach. In Anatolia. https://doi.org/10.1080/13032917.2020.1795894

Yamagishi, K., Canayong, D., Domingo, M., Maneja, K. N., Montolo, A., & Siton, A. (2024). User-generated content on Gen Z tourist visit intention: a stimulus-organism-response approach. Journal of Hospitality and Tourism Insights, 7(4), 1949-1973.

Yang, E. C. L., & Nair, V. (2014). Tourism at Risk: A Review of Risk and Perceived Risk in Tourism. Asia-Pacific Journal of Innovation in Hospitality and Tourism (APJIHT), 3(2), 239–259. https://doi.org/10.7603/s40930-014-0013-z

Zheng, D., Luo, Q., & Ritchie, B. W. (2021). Afraid to travel after COVID-19? Self-protection, coping and resilience against pandemic 'travel fear.' Tourism Management, 83. https://doi.org/10.1016/j.tourman.2020.104261