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Analysis of Factors Influencing Visitors' Disaster Awareness in Disaster-prone Destinations in West Nusa Tenggara Province

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Abstract

This study aims to analyze the factors influencing disaster awareness among visitors of disaster-prone tourist destinations in West Nusa Tenggara (NTB) Province. The method was multiple linear regression analysis involving 200 respondents, with two main dimensions as the independent variables: Psychological factors (X1), which include risk perception, disaster experience, and trust in authorities, and Environmental & Information factors (X2), which include access to information, the availability of disaster management systems, and media influence. The results showed that both factors partially and simultaneously enhance disaster awareness. Psychological factors have a dominant influence compared to environmental & information factors. These findings also showed that the combination of psychological, environmental, and information factors moderately predict variation in disaster awareness. These findings deliver theoretical and practical contributions. Theoretically, the study proposes an integrated disaster awareness model, highlighting the synergistic interplay between psychological and informational factors. Practically, the results advocate for a multidimensional strategy, urging stakeholders to combine initiatives that boost risk perception, improve risk communication, and utilize media support. Consequently, this study provides a valuable framework and concrete insights for formulating effective disaster resilience programs in the disaster-prone destinations of NTB.

Keywords: disaster awareness, disaster-prone destinations, environmental & information factors, psychological factors, visitor

A. Introduction

Tourism is a highly vulnerable sector to crises and disasters (Liu *et al.*, 2024; Budiatiningsih *et al.*, 2025). The occurrence of disasters in tourist areas can affect the image of a destination. In fact, the presence of disaster risks has a significant influence on tourists' decisions to visit (Nair and Pratt, 2022). Therefore, it is important to incorporate disaster management in tourism. Especially if a tourist destination is located in a disaster-prone area, both the destination managers and the government must ensure the availability of a disaster management system and an evacuation plan in the event of a disaster as a way to mitigate the risk. Çelik (2023) framework posits that effective disaster management and community resilience rest on interconnected pillars: disaster education, public risk perception, awareness, and preparedness. This is critical to ensuring the safety of both visitors and administrators at tourism destinations vulnerable to disasters.

The existence of a disaster management system should also be supported by disaster awareness among local communities, destination managers, tourism actors, and visitors so that the system can works effectively. Disaster awareness is particularly important because tourists are often among the groups who were the most vulnerable to disasters due to their lack of local knowledge and risk awareness (Rindrasih, 2018; Nugraha *et al.*, 2022; Zhang *et al.*, 2023). Supporting this, research notes that disaster-aware tourists tend to be more proactive, adopting precautionary measures prior to travel to high-risk destinations, such as following safety guidelines and mentally preparing themselves through learning relevant safety procedures (Zhang *et al.*, 2023). In case a disaster event happens, tourists who are aware of disaster risks also mentally prepared to comply with evacuation procedures. Within disaster-prone destinations, visitors' disaster awareness is a critical determinant of their safety and the effectiveness of on-site emergency responses. This awareness directly influences the preventive measures tourists take and their ability to react appropriately during a crisis, thereby impacting not only personal safety but also broader community vulnerability in tourism areas (Hutagalung & Indrajat, 2023).

West Nusa Tenggara (NTB) Province is one of Indonesia's emerging tourist destinations. NTB offers a variety of attractions frequently visited by both domestic and international tourists, such as Gili Trawangan, the Mandalika Area, Sembalun, Sade Village, Ende Village, and Pink Beach. While these destinations are highly attractive, they are vulnerable to disaster threats. A major earthquake in 2018 happened in Lombok, NTB, and affected the tourism sector significantly (Pusat Vulkanologi dan Mitigasi Bencana Geologi, 2019). Gili Trawangan, the Mandalika Special Economic Zone, and Sembalun are examples of destinations with consistently high tourist visits but located in disaster-prone areas.

To promote the resilience and security of the tourist destination, it is important to understand the factors affecting visitors' disaster awareness. However, there are relatively few empirical studies on the factors determining

disaster awareness in developing countries (Xu et al., 2018). Disaster awareness can be affected by factors such as educational background, location, and previous disaster experiences (Becken & Hughey, 2013; Asio, 2021), as well as the availability of information at tourist sites (Becken & Hughey, 2013). Disaster knowledge may also be shaped by visitor characteristics and demography (Budiatiningsih & Rosyidie, 2022). Disaster awareness can further be influenced by participation in disaster preparedness training activities (Susanti & Kutanegara, 2019; Asio, 2021; Tada et al., 2022). According to Azali and Ludin (2020), training activities are necessary to foster disaster awareness.

Previous studies have explored the factors that affect disaster awareness among visitors of disaster-prone destinations, but only a few research that exploring integrated framework that combining psychological factors and external factors to explain disaster awareness. A study conducted by Rahmafitria et al. (2025) has explored about how destination attributes affect perceived risk of visitors and the perceived risk in turn affecting disaster preparedness but its only explore risk perception as an individual psychological factor affecting preparedness (action form of disaster awareness). Nasution & Daulay (2023) also has explored visitors' knowledge, attitude, and education as variables affecting preparedness when facing disaster, but the psychological and external situational factors such as information sources and trust to government have not been explored yet. This gap highlighting the importance of this research which is to explore an integrated framework of how psychological and environmental-information factors affecting disaster awareness.

Understanding the factors that may influence visitors' disaster awareness is essential for formulating preparedness measures that can be applied in disaster-prone tourist destinations. Moreover, this information is also needed by destination managers and local governments as a basis for designing more effective disaster management systems in tourism areas.

Accordingly, this paper investigates the profile of visitor disaster awareness and analyze its determinants in disaster-prone destinations across West Nusa Tenggara Province. A quantitative approach was adopted for this study. The analysis was conducted using multiple linear regression to determine the factors that influence disaster awareness. The findings are intended to provide an empirical basis for policymakers and destination managers in designing more effective disaster management systems, particularly by enhancing tourist awareness and preparedness.

B. Literature Review

The concept of disaster awareness

Disaster awareness is a condition in which an individual possesses knowledge related to disaster risks (Budiatiningsih & Rosyidie, 2022). According to (Dyahati et al., 2020), disaster awareness encompasses both cognitive understanding of disaster risks and the behavioral readiness to undertake preventive and mitigative actions in facing disasters. In line with this

view, (Patel *et al.*, 2023) also state that disaster awareness is related to how far the knowledge of disaster risks and contributing factors influences the actions that individuals or groups can take to cope with disaster or hazard exposure.

An individual with disaster awareness is a person who has general knowledge about disasters, knowledge of the warning signs of disasters, and knowledge of self-rescue plans in the event of a disaster (Budiatiningsih & Rosyidie, 2022; Budiatiningsih *et al.*, 2025). Disaster awareness is demonstrated not only through disaster-related knowledge but also through appropriate attitudes and actions when dealing with disasters (Dyahati et al., 2020).

Based on these perspectives, it can be concluded that an individual with disaster awareness is not only possess basic knowledge about disasters but also understands the appropriate steps to take when facing hazards or disaster risks. Therefore, disaster awareness can help communities reduce disaster risks (Akbar, et al., 2020). Communities with disaster awareness are more willing to participate in disaster response efforts. This is consistent with the findings of (Kang et al., 2023), which show that disaster awareness has a positive relationship with participation in disaster response.

Factors influencing disaster awareness

Factors influencing disaster awareness can come from internal and external factors. The internal factors were internal psychological characteristics that worked as a trigger to look for any information regarding disaster which in turn raising disaster awareness. This psychological aspect can come from risk perception, personal experience, or trust for information from expert.

Risk perception is how a person subjectively views the feeling of dangers they might encounter. As a key psychological driver of disaster awareness, it is usually shaped by personal history or education. According to Viet, et al., (2020), how individuals perceive these risks determined their behavior. Individuals with high levels of risk perception will have a high alertness especially in a disaster-prone area. This perceived risk of disaster, indirectly will raise disaster preparedness and awareness (Rahmafitria, et al., 2025)

Experience is something that is both psychological and physical. A situation that we have perceived can stick to our mind, leaving certain feeling in our psychological mind (Jantzen, 2013). Individuals who have experienced disaster have sensed the effect and risk of disaster with their own sense. Hence, the individuals who have disaster experience, tend to be more proactive in looking for information to mitigate the risk. An explanation about this is experience may lead to trauma that indirectly will increases perception of risk and alertness when a person with disaster experience planned to go to disaster-prone area (Becker et al., 2017).

Feeling of trust in authorities also can act as a positive psychological factor. This feeling of trust positively can encourage visitors to adhere to safety rule, operational regulation, warning sign, and emergency protocols in case of disaster. The emotional reassurance that come from feeling of trust can make

visitors' pay attention to the information around the area and indirectly increase overall disaster awareness (Douglas & Wildavsky, 1982; Paton, 2003). Previous research also found that trust in institutions and authorities increase appropriate Disaster Risk Reduction (DRR) behaviors, such as purchasing insurance and supporting policies (Bonfanti et al., 2023).

External factors that contribute to disaster awareness come from environment and learning process from information sources. Both of these factors can act as external situational factors that affect disaster awareness. Environment and information factors included several indicators, which were the access to information, the availability of disaster management systems, and the influence of the media.

Access to information includes every information source in the destination related to disaster threats, risks, and mitigation action which enhances the visitors' disaster awareness. More access to information means greater exposure to disaster-related information, opportunity of learning, that will ultimately empower disaster awareness. The availability of disaster management systems also indirectly affects disaster awareness, since the official information about the system will be posted or announced by the authorities on site. Widodo & Hastuti (2019) found that there is a correlation between the lack of information in tourism destination and low awareness happen.

Exposure to information from media also can affects visitors' disaster awareness. Information from the media in form of news, campaign, public service announcement (PSA), act as a trusted source of information for visitors, directly enhance their knowledge about disaster and raising disaster awareness. Prior research by Syam et al., (2025) positively support the effect of audiovisual media in raising awareness about health risk. Another research conducted by Pahrudin et al. (2023) also found that sources of information through online and offline media can raise awareness about a destination.

Based on the factors affecting disaster awareness mentioned above, hypothesis of this research is regarding the overall model significance and individual coefficient significance. Overall model significance: (1) H0: $\beta 1 = \beta 2 = 0$ (There is no factors (psychological or environmental-informational) that has a significant linear relationship with Y; (2) Ha: at least one $\beta i \neq 0$ (at least one of the factors (psychological or environmental-informational) has a significant relationship with Y)

Hypothesis for individual coefficient significance (psychological factor): (1) H0: $\beta 1 = 0$ (Psychological factor has no effect on disaster awareness); (2) Ha: $\beta 1 \neq 0$ (Psychological factor has significant effect on disaster awareness). Hypothesis for individual coefficient significance (environmental-informational factor): (1) H0: $\beta 2 = 0$ (environmental-informational factor has no effect on disaster awareness); (2) Ha: $\beta 2 \neq 0$ (environmental-informational factor has significant effect on disaster awareness).

C. Research Methodology

Employing a quantitative methodology, this paper intends to identify and analyze the key factors that shape disaster awareness levels among tourists visiting hazard-prone destinations in NTB Province. This study was conducted on disaster-prone tourist destinations in West Nusa Tenggara Province (NTB). As the research sites, three leading tourist destinations in NTB were selected based on the following characteristics: (1) disaster-prone; (2) exposed to more than one type of disaster threat; and (3) consistently high tourist visits. The destinations that fit to these criteria are the Mandalika Special Economic Zone (SEZ), Mount Rinjani National Park, and Gili Trawangan. Therefore, the study was conducted on these 3 destinations.

The population for this research is visitors to disaster-prone tourist destinations in West Nusa Tenggara Province. The population size is considered as infinite. Consequently, a purposive sampling technique was employed to select respondents who met the following criteria: (1) having visited one of NTB's disaster-prone destinations (Mandalika SEZ, Mount Rinjani National Park, or Gili Trawangan) between 2019 and 2025; (2) aged above 17 years; (3) not a resident of any of the research sites; (4) willing to participate in the study. The number of samples for multiple regression purpose following Samuel B. Green Formula that is used to estimate minimum sample size needed (Mohanasundaram et al., 2024). The formula to test individual predictors is: $n \geq 104 + k$

While the formula for multiple correlation is $n \geq 50 + 8k$, n=size of minimum sample, k=number of predictors. Therefore, since the predictors in this research are 2 predictors (psychological and environmental-information), then the minimum size of samples needed is 104 + 2 = 106. The sample in this research yield 200 samples which were more than the minimum sample required for multiple regression analysis.

Surveys with structured questionnaires were used to collect data. The questionnaires were distributed both directly (in person) to visitors and online via Google Forms. In this research, visitor disaster awareness was operationalized as the dependent variable (Y), while the independent variables were: psychological factors (X1) and environmental and information factors (X2).

Table1. Instrument Blueprint

Variables	Indicators	Item Numbers	Total Items
Disaster awareness (Y)	Knowledge, Attitude, Motor Skills	Y1, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9	9
Psychological (X1)	Risk Perception, Disaster Experience, Trust in Authorities	X1.1, X1.2, X1.3	3

Variables	Indicators	Item Numbers	Total Items
Environmental & Information (X2)	Access to Information, Availability of Disaster Management Systems, Media Influence	X2.1, X2.2, X2.3	3

Source: Data processed (2025)

The disaster awareness variable (Y) was measured using a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree) in a self-assessment survey. The psychological variable (X1) indicated by aspects such as risk perception, disaster experience, and trust in local authorities. Meanwhile, the environmental and information variable (X2) comprised aspects such as access to information, the availability of disaster management systems, and media influence. X1 and X2 were measured using self-report scales with responses recorded on a 4-point Likert scale: (1 = strongly disagree to 4 = strongly agree).

Data Analysis Technique

The primary analytical method adopted in this research is multiple linear regression analysis, employed to assess the relationship between the independent variables (factors influencing disaster awareness) and the dependent variable (visitors' disaster awareness level). Prior to the main analysis, the research instruments underwent validity and reliability testing using SPSS software. Following data collection, the dataset was subjected to classical regression assumption tests, including tests for normality, heteroscedasticity, autocorrelation, and multicollinearity. Only after confirming that all statistical assumptions were met did we proceed with the multiple linear regression analysis to identify significant predictors and determine the magnitude of their influence.

D. Result

Table 2. Characteristics of Respondents (N=200)

Demographic Information	Number	Percentage
Gender		
Male	112	56%
Female	88	44%
Age		
17–24 Years	141	70.5%
25–34 Years	41	20.5%
>35 Years	18	9%
Education Level		
Senior High School / Vocational School	99	49.5%
Diploma (D1/D2/D3)	39	19.5%
Bachelor's Degree or Higher (S1/S2/S3)	62	31.0%

Demographic Information	Number	Percentage
Disaster Experience		
Never	12	6%
Once	81	40.5%
2–3 Times	75	37.5%
>=4 Times	32	16%

Source: Data processed (2025)

Table 2 describes various characteristics of the respondents who participated in this research. Based on the data 56% of the respondents were men and 44% were women. Furthermore, the age of the respondents involved started from 17 years old. The number of respondents aged 17-24 years old were 70.5%, 25-34 years old were 20.5%, and respondents aged more than 35 years old were 9%. The latest education background of the respondents in this research consists of senior high school or vocation school as much as 49.5%, diploma 19.5%, and bachelor graduate or higher 31%. This data showed that respondents of this research dominated by young adult that already graduated from high school or vocational school.

On disaster experience aspect, 6% of the respondents have never experienced disaster, 40.5% have experienced disaster once, 37.5% have experienced disaster 2-3 times, and 16% of the respondents have experienced disaster equal or more than 4 times. It means that the respondents in this research mostly have experienced disaster and dominated by respondents who experienced disaster once. Indonesia is a nation prone to disaster since its located in the ring of fire, meeting point of major tectonic plates, and in form of archipelago. Hence, Indonesian citizen mostly lives in disaster prone area and have experienced natural disaster or at least natural hazard.

Table 3. Validity Test Summary

No.	Statement	r value	R table	Description
1	Y1	0.628	0.138	Valid
2	Y2	0.627	0.138	Valid
3	Y3	0.688	0.138	Valid
4	Y4	0.601	0.138	Valid
5	Y5	0.630	0.138	Valid
6	Y6	0.623	0.138	Valid
7	Y7	0.682	0.138	Valid
8	Y8	0.635	0.138	Valid
9	Y9	0.516	0.138	Valid
10	X1.1	0.879	0.138	Valid
11	X1.2	0.746	0.138	Valid
12	X1.3	0.907	0.138	Valid
13	X2.1	0.856	0.138	Valid

No.	Statement	r value	R table	Description
14	X2.2	0.864	0.138	Valid
15	X2.3	0.695	0.138	Valid

Source: Data processed (2025)

Validity test (Table 3) for questionnaire was used to measure whether the items can truly measure the knowledge or ability that was tested. A questionnaire item is considered valid if its calculated r-value exceeds the critical r-table value. In this research, the r-table was 0.138 which was the value for the degree of freedom that was equals to 198. In this study, the validity test was conducted on 15 questionnaire items for 200 respondents. The data on Table 3 showed that all question items are valid as evidenced by the value of r-value > R table for all question items.

Table 4. Reliability Test Summary

No.	Variable	Cronbach's Alpha	Description
1	Disaster awareness	0.807	Reliable
2	Psychological	0.759	Reliable
3	Environmental & Information	0.734	Reliable

Source: Data processed (2025)

The table above (Table 4) explained that all question items are reliable as evidenced by the r-value of Alpha Cronbach Reliability Test that is above 0.7 on all question items.

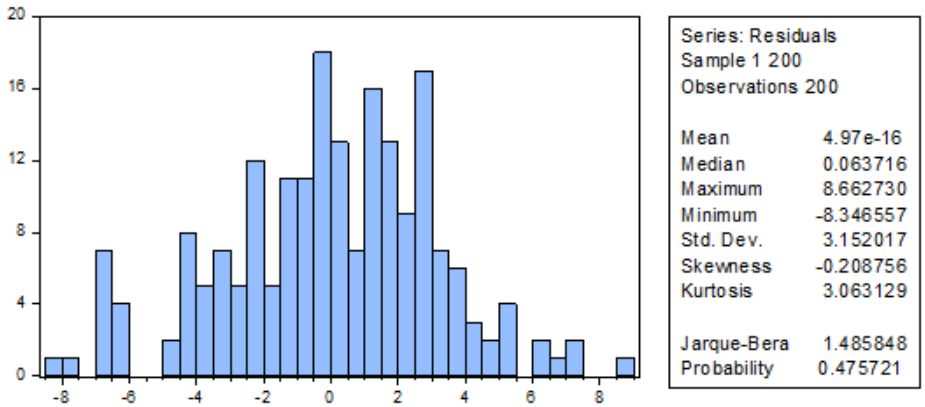


Figure 1. Data Distribution
Source: Data processed (2025)

Figure 1 above explained about the result of normal distribution assumption test as one of the key requirements to conduct a parametric test such as regression test. Referring to Figure 1, the value of skewness and kurtosis respectively -0.2 and 3.0 with the histogram formed a bell shape (data

clustered around a central mean) indicated that the data distribution is normal. Kline (2011) stated that normal distribution for structural equation modelling assumed when skewness of the data is between -3 to +3 and kurtosis is between -10 to +10.

Table 5. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.219297	Prob. F (2,197)	0.2977
Obs*R-squared	2.445459	Prob. Chi-Square (2)	0.2944
Scaled explained SS	2.447537	Prob. Chi-Square (2)	0.2941

Source: Data processed (2025)

The heteroscedasticity test was conducted using the Breusch-Pagan-Godfrey method. The test results (Table 5) showed an F-statistic value of 1.219297 with a probability of 0.2977, and an Obs*R-squared value of 2.445459 with a probability of 0.2944. Since both probabilities are greater than 0.05, no evidence of unequal variance was found in the model's residuals. This means that the residual variance is homogeneous, so that the regression model meets the assumption of homoscedasticity (Ghozali, 2018; Parantika et al., 2025).

Table 6. Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.295803	Prob. F (2,195)	0.2760
Obs*R-squared	2.623194	Prob. Chi-Square (2)	0.2694

Source: Data processed (2025)

The autocorrelation test uses the Breusch-Godfrey Serial Correlation LM Test. The results show an F-statistic value = 1.295803 with a probability of 0.2760, and an Obs*R-squared value = 2.623194 with a probability of 0.2694. Both are greater than 0.05 so it can be concluded that there is no autocorrelation.

Table 7. Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.84506	1.330166	9.656734	0.0000
X1_P	1.599013	0.222528	7.185663	0.0000
X2_LI	0.642449	0.151539	4.239488	0.0000
R-squared	0.438142	Mean dependent var		28.97500
Adjusted R-squared	0.432438	S.D. dependent var		4.205091
S.E. of regression	3.167977	Akaike info criterion		5.158950
Sum squared resid	1977.107	Schwarz criterion		5.208424
Log likelihood	-512.8950	Hannan-Quinn criter.		5.178971
F-statistic	76.81129	Durbin-Watson stat		1.911915
Prob(F-statistic)	0.000000			

Source: Data processed (2025)

As presented in Table 7, The highly significant P value of F-statistic (0.0000 < 0.005) confirms that the independent variables (X1 and X2) simultaneously exert a positive and significant influence on disaster awareness (Y). This demonstrates that the regression model is statistically valid and adequately explains variations in disaster awareness. The combined explanatory power of X1 and X2 is reflected in an R-squared value of 0.43 (43%). This indicates that approximately 43% of the variance in disaster awareness is simultaneously explained by psychological and environmental-information factors, while the remaining 57% is attributable to variables that were not included in this model. Following (Chin, 1998) guideline, an R^2 of 0.43 falls within the moderate range of predictive strength.

Furthermore, partially the regression results indicate that the Psychological Factor (X1) significantly and positively influences Disaster Awareness (Y), with a coefficient (β) of 1.599. This implies that for every one-unit increase in the psychological factor score, the disaster awareness score rises by approximately 1.60 points, ceteris paribus. This relationship is statistically highly significant, as evidenced by a p-value of less than 0.005.

Similarly, the Environmental & Information Factor (X2) partially demonstrates a significant positive influence on Disaster Awareness, with the coefficient value (β) of 0.642. This indicates that each one-unit increase in X2 is associated with a 0.64-point rise in awareness. The effect is statistically confirmed, as evidenced by its p-value ($p < 0.005$).

Based on the analysis, the regression model equation can be formulated as follows: $Y = 12.8 + 1.60X1 + 0.64X2$. This model estimate disaster awareness levels of visitors based on the two key dimensions, which were psychological readiness (X_1) and environmental-information access (X_2).

E. Discussion

According to the research findings, psychological factors indicated by risk perception, disaster experience, and trust in authority have a significant positive effect on disaster awareness. This finding showed that the indicators within the psychological dimension collectively contribute and can predict disaster awareness. It means that person with higher psychological factors will have a higher disaster awareness.

As an indicator of psychological factor, risk perception or individual's subjective judgment or feeling about the risks they face has a contribution to disaster awareness. Risk perception that sourced from past disaster experiences or through learning processes determines individual course of action (Viet, et al., 2020). Individuals who perceive higher risks perception tend to be more cautious in responding to disasters, as they understand the potential impacts when disasters occur, thereby becoming more vigilant when visiting areas that is known to have disaster risks (Slovic, 1987). Rahmafitria et al. (2025) also found that lower risk perception because of the feeling of safety and content about destination characteristic can lower disaster awareness and preparedness. This

pattern is consistently observed across different hazard contexts. For instance, during the COVID-19 pandemic, a clear, positive relationship was observed: higher perceived risk consistently translated into greater compliance with preventive practices (Gidado et al., 2024).

Another indicator for psychological factor is experience. First hand disaster experience builds different view about disaster as they will not underestimate the likelihood of having recurring negative experience. To prepare for the risk, individuals who have a disaster experience will make sure that they have the information needed to prepare for disaster when they will go to disaster-prone area. This is also in line with the findings of other research where the individual's earthquake experience may lead to trauma that drives them to seek further information about disasters and indirectly increases their risk perception and alertness in disaster-prone areas (Becker et al., 2017). The same phenomenon also explained by Akmal et al. (2024), where individuals with disaster experience in tsunamis and earthquake tend to look for information related to disaster mitigation that in turn raising their awareness.

Trust in local authorities or tourism service providers as the indicator of positive psychological emotions can motivate individuals to comply with rules, hazard warning signs, and disaster-related information at tourist sites. These positive emotions and obedience to the rules, signs, and sources of information that were born from a high level of trust to the local government in turn enhances individual disaster awareness (Douglas & Wildavsky, 1982; Paton, 2003). Research also indicates that trust in institutions fosters appropriate Disaster Risk Reduction (DRR) behaviors, such as purchasing insurance and supporting adaptation policies (Bonfanti et al., 2023).

Another explored factor in this research that affects disaster awareness is the combination of environmental and informational factor, which significantly affects visitors' disaster awareness. This factor includes several indicators, which were access to information, the availability of disaster management systems, and the influence of the media. The significance effect of the environmental and informational factor to disaster awareness means that a higher level of information access, availability of disaster management systems, and higher exposure to information from other media can increase disaster awareness.

Access to information allows individuals to obtain knowledge related to disaster threats and risks, which enhances their disaster awareness at the sites they visit. The wider the access to information, the greater the opportunity to be exposed to disaster-related information and risk perceptions, ultimately increasing disaster awareness. The availability of disaster management systems on the visited sites also indirectly affects disaster awareness by providing official information from site managers or authorities concerning disaster risks. Such exposure can make visitors become more alert and improve their disaster awareness. This findings aligns with the systemic explanation and observation from the research that was done by Widodo & Hastuti (2019), in which a direct correlation between missing informational infrastructure in tourism destination

and low awareness happen. Our model explained that this correlation is indirectly driven by the absence of an informational infrastructure.

Media exposure significantly affects visitors' disaster awareness, as it serves as a source of information on disaster news, issues, risks, and preventive measures. Reliable information from the media can serve as a trusted reference for visitors, thereby enhancing their alertness and disaster awareness. Supporting this result, prior research underscores the efficacy of audiovisual media in raising awareness of health risks (Syam, et al., 2025).

Nevertheless, according to the findings, both psychological factors (X1) and environmental-information factor (X_2) contribute moderately to disaster awareness. This finding means that disaster awareness is the result of the combined influence of both these factors moderately, and also other factor that is not examined in this research. Hence, this finding also explains the complexity of disaster awareness as an important variable in the case of disaster mitigation. Disaster awareness of an individual can be sourced from various factors such as education, location, and previous disaster experiences (Becken & Hughey, 2013; Asio, 2021). In term of tourist destination, disaster awareness can also affected by the availability of information and signs at tourist sites (Becken & Hughey, 2013). As a visitors' important variable, disaster knowledge may also be formed by their characteristics and demography (Budiatiningsih and Rosyidie, 2022). Disaster awareness can further be enhanced by external practical education such as participation in disaster preparedness training activities (Susanti & Kutanegara, 2019; Asio, 2021; Tada et al., 2022). According to Azali & Ludin (2020), training activities are necessary to foster disaster awareness.

This study offers new contribution for a synergistic model in which psychological readiness and environmental-informational access jointly can predict disaster awareness among visitors. The significant link between risk perception, prior experience, information availability, and preparedness levels establish a multi-dimensional foundation for designing targeted interventions to improve visitors' safety in vulnerable destinations.

The characteristics of tourist destinations in NTB who have experienced a major earthquake in 2018 and located in disaster-prone area are related to the psychological factors. Based on the finding in terms of risk perceptions, individuals who learned about the disaster risks of the destinations and have high risk perception will show a higher disaster awareness and preparedness when they visit the area. Individuals who have experienced the disaster first hand also should have a higher awareness of the risks in the area. Local authorities and service providers in NTB also have experience in the disaster situation. The positive emotions sourced from the trust of the authorities' experience can be a source of motivation to individuals to comply with the rules and warning signs in the tourism area.

These findings also signal the need for integrated communication and education strategies to build resilience within tourism systems. The availability

of informational sources in disaster-prone destination can improve the visitors' awareness by providing necessary information about risks and preventive measure in case of disaster. Media exposure also can be a reliable source of information for visitors when the media also contains information regarding risks, measure, and system that already implemented in the disaster-prone area.

F. Conclusion

This study confirms that both psychological factors including risk perception, personal disaster experience, and trust in authorities and environmental-informational factors such as access to information, disaster management systems, and media influence significantly enhance disaster awareness among tourists visiting disaster prone destinations. The findings demonstrate that higher levels of risk perception, direct experience, and exposure to relevant information are positively associated with increased visitor awareness and preparedness.

Theoretically, this research contributes an integrated model of disaster awareness, highlighting the synergistic relationship between psychological and environmental-informational dimensions in shaping tourist preparedness. This framework offers a comprehensive basis for understanding how disaster awareness is formed in tourism contexts. From a practical perspective, the results underscore the necessity of a multidimensional approach to fostering disaster awareness, integrating coordinated strategies that address both psychological and informational factors.

Future research of this study should explore more about the factors affecting disaster awareness in a more holistic approach. Employing SEM-PLS or exploratory factor analysis (EFA) to determine the loading factor of psychological dimension, demography, and other external dimension affecting disaster awareness. The respondents of the research can also include international tourists and visitors from diverse regions to better understand disaster preparedness across populations. Concurrently, studies on tourism destination disaster management are essential to inform the development of strategies for building disaster-resilient tourist destinations.

G. Acknowledgement

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H. Conflict of Interest

The authors disclose no financial or non-financial competing interests concerning this investigation of visitors' disaster awareness in West Nusa

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I. Declaration of AI Use

The authors drew on ChatGPT by OpenAI when developing the preliminary conceptual framework and preparing drafts of selected manuscript sections. They critically evaluated the proposed concepts against established theories and original scholarly literature, then checked the drafted passages for consistency with the research procedures and empirical findings. The authors revised the material, verified the references, and determined the final arguments and interpretations. They accept full responsibility for the accuracy, originality, and integrity of the complete manuscript.

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