

Crisis Information Framing and the Psychological Responses of Flood-Affected Generation Z

Akhmad Roqi Alawi^{1*}, Najmi Rizki Khairani², Sutinnarto²

¹University of Tidar

Jl. Barito 1 No.2, Kedungsari, Kec Magelang Utara, Kota Magelang, Indonesia

²Institut Karya Mulia Bangsa

Jl. Ki Sarino mangunpranoto No. 9, Cemungsari Bandarjo, Ungaran Barat, Indonesia

*Email correspondence: akhmadroqialawi@untidar.ac.id

Submitted: March 2026, Accepted: May 2026, Published: June 2026

Abstract - Recurring floods in the city of Semarang not only cause physical damage but also affect the psychological well-being of the community through exposure to crisis information on social media. For Generation Z, Instagram has become the primary platform for accessing and responding to disaster-related information. However, research on the impact of crisis information framing on the psychological responses of disaster victims remains relatively limited, particularly in the context of digital crisis communication in Indonesia. This study aims to analyse the influence of crisis information framing on Instagram on the anxiety and psychological tranquility of Generation Z affected by flooding in the city of Semarang. The study employs an explanatory quantitative approach through a survey of 232 respondents aged 17 - 28 years. Data analysis was conducted using simple linear regression with the aid of IBM SPSS Statistics. The results indicate that crisis information framing has a positive and significant effect on anxiety, but does not significantly affect psychological tranquility. These findings suggest that crisis information framing functions more as a trigger for situational emotional responses rather than as a factor influencing long-term psychological stability.

Keywords: Crisis Information Framing; Anxiety; Psychological Tranquility; Generation Z; Situational Crisis Communication Theory

Abstrak - Banjir berulang di Kota Semarang tidak hanya menimbulkan kerugian fisik, tetapi juga memengaruhi kondisi psikologis masyarakat melalui paparan informasi krisis di media sosial. Bagi Generasi Z, Instagram menjadi ruang utama dalam mengakses dan merespons informasi terkait bencana. Namun, pengaruh *crisis information framing* terhadap respons psikologis korban bencana masih relatif terbatas dikaji, khususnya dalam konteks komunikasi krisis digital di Indonesia. Penelitian ini bertujuan menganalisis pengaruh *crisis information framing* di Instagram terhadap kecemasan dan ketenangan psikologis Generasi Z terdampak banjir di Kota Semarang. Penelitian menggunakan pendekatan kuantitatif eksplanatif melalui survei terhadap 232 responden berusia 17 - 28 tahun. Analisis data dilakukan menggunakan regresi linear sederhana dengan bantuan IBM SPSS Statistics. Hasil penelitian menunjukkan bahwa *crisis information framing* berpengaruh positif dan signifikan terhadap kecemasan, tetapi tidak berpengaruh signifikan terhadap ketenangan psikologis. Temuan ini menunjukkan bahwa framing informasi krisis lebih berfungsi sebagai pemicu respons emosional situasional dibandingkan sebagai faktor yang memengaruhi stabilitas psikologis jangka panjang.

Kata Kunci: Crisis Information Framing; Kecemasan; Ketenangan Psikologis; Generasi Z; Situational Crisis Communication Theory

Introduction

Flood disasters are one of the most frequent hydrometeorological disasters in Indonesia (Dwinanda et al., 2024). Semarang City is an area with a high level of vulnerability to flooding due to a combination of rainfall, river runoff, and the tidal phenomenon, which is influenced by sea-level rise and land subsidence (Setiyono et al., 2023; Widada et al., 2020). The impact of floods is not only in the form of physical damage and material losses, but also has psychological consequences for affected communities (Bukar et al., 2022; Charoensukmongkol & Phungsoonthorn, 2022). Flood victims often experience fear, worry, insecurity, and uncertainty about the possibility of subsequent floods (Borah & Saikia, 2025).

Experience of current disasters no longer comes solely from direct exposure at the scene of the incident. The development of communication technology allows people to experience disaster events through exposure to digital information (L. Li et al., 2023). Information about floods is mostly shared through social media, which has the characteristics of rapid and widespread dissemination (Bukar et al., 2022). Instagram is one of the important platforms because it is based on visuals, such as photos and videos, so that it can present disaster conditions emotionally and immersively.

The flooded content circulating on social media is not always presented neutrally. Information is often packaged through certain perspectives, such as danger warnings, damage reports, citizen complaints, criticism of the government, and narratives of solidarity and support (Han et al., 2022; Dujardin et al., 2025; Li et al., 2023). This phenomenon is known as crisis information framing, which is the process of structuring and emphasizing crisis messages, shaping the way the public understands an event, and influencing their response to the situation (Ogbodo et al., 2020; Xie et al., 2022). Information that highlights the threat aspect has the potential to increase public anxiety. On the other hand, messages that contain explanations about response measures and social support measures can help foster a sense of security and tranquility (Tao et al., 2022; Schaller, 2025).

Situational Crisis Communication Theory (SCCT) explains that messages in crises play a role in shaping people's interpretation of an event (Coombs, 2007). Emergencies are often characterised by limited information and high speculation, so individuals try to build meaning from the events experienced. Communication serves as a collective sense-making process that helps reduce uncertainty and build mutual understanding (Stieglitz et al., 2018). Crisis communication thus not only conveys facts, but also affects the way people interpret disasters.

In the framework of SCCT, there are two types of information needs. Instructional messages contain concrete guidance such as evacuation procedures and safety measures. Adjustment message include empathy, clarification, as well as psychological support to relieve emotional distress (Scheiwiller & Zizka, 2021). Adjustment messages have an important role because they can help lower emotional tension and reduce negative perceptions of the institutions involved in handling the crisis.

Social media is changing the dynamics of crisis communication because information production is no longer limited to the government or official institutions. Users can upload documentation, opinions, and criticisms that are directly accessible to the public. This process results in digital framing, which is the selection and highlighting of certain aspects of an event to support particular interpretations. Visual depictions of damage or narratives of handling failures can affect perceptions of institutional responsibility (Shahbazi & Bunker, 2024). Exposure to Instagram content in this context is not only informative but also has the potential to affect people's psychological conditions.

From the perspective of media psychology, the audience is understood as an individual who is cognitively active when receiving a message. Information that emphasizes threats can

trigger rapid risk assessment (Won et al., 2025). Ambiguity in the situation often causes state anxiety (Leal et al., 2017). In the context of disasters, social media can form a perception of danger that produces mediated anxiety (Liu & Liu, 2020). Video exposure to floods, evacuation processes, and victim panic can maintain a state of mental alertness even though the physical threat has decreased. The media can also have a positive impact. Clear information and concrete action steps can build a perception of control (Marzouki et al., 2021). When individuals understand the situation and know what actions can be taken, psychological tranquility is more likely to emerge (Fletcher & Sarkar, 2013). Information transparency plays a role in reducing panic and encouraging more rational decision-making during disasters.

Generation Z is a group that grew up in a digital environment and has a high proximity to social media (Farhan et al., 2025). Their daily information is widely obtained through digital platforms, especially Instagram (Andriany & Triwardhani, 2025). In disaster situations, information searches are often conducted through other users' uploads before accessing official sources (Wardhani et al., 2025). The experience of crises in this generation has been greatly influenced by technology, with a higher frequency of exposure than previous generation.

Generation Z's engagement on social media is also relatively high because they not only access information - but also comment, reshare, and react to content. This interaction can trigger emotional contagion, which is the spread of emotions through social networks (Zhou, 2025). Generation Z ultimately not only becomes recipient of information, but also plays a role in shaping the framing of the crisis itself. The ability to understand and evaluate information is crucial because exposure to the media can increase preparedness or worsen psychological distress (Bosanac & Luic, 2021).

Previous research on disasters has largely emphasised physical, socioeconomic, and mental health impacts based on the level of damage (Heanoy & Brown, 2024; Bhuiyan et al., 2021; Markhvida et al., 2020). Communication studies tend to focus on public opinion and government image. Social media research in the context of disasters generally addresses the dissemination of information and coordination of relief (Rowbotham et al., 2019; Oo & Dai, 2025) (Guo et al., 2025). The media is still often positioned as a means of conveying information, not as a factor that directly affects the psychological condition of victims in the context of disasters.

Studies on the relationship between crisis information framing on Instagram and the emotional responses of disaster victims, especially Generation Z, are still limited. Disaster psychology research generally focuses on anxiety and trauma, while the media's position as a source of psychological tranquility has not been widely explored. Considering that social media is the main source of information during disasters, the quality of the message conveyed is very important because inaccurate information can increase public panic (Hilberts et al., 2025). This research integrates crisis communication, media framing, and disaster psychology in the context of social media. The focus of the study includes anxiety as a negative impact and psychological tranquility as a positive impact. This study aims to analyze the influence of crisis information framing on Instagram on the emotional condition of Generation Z affected by floods in Semarang City, namely the level of anxiety and the level of psychological tranquility.

H1: Crisis information framing has a significant effect on the anxiety level of Generation Z affected by floods in Semarang City.

H2: Crisis information framing has a significant effect on the level of psychological tranquility of Generation Z affected by floods in Semarang City.

Methodology

This study employed a quantitative approach using a survey method to examine the influence of crisis information framing presented via Instagram on anxiety and tranquility levels

among Generation Z individuals affected by flooding in Semarang. The quantitative approach was chosen because it allowed for the objective testing of relationships between variables through statistical analysis based on numerical data. This study was classified as explanatory research, aiming to explain the cause-and-effect relationship between independent and dependent variables. The entire research process took place from June to December 2025, encompassing instrument development, data collection, data processing and analysis, and research report preparation. Data collection activities were conducted from August to December 2025.

The study population consisted of Generation Z individuals aged 17 to 28 who resided in Semarang and had experienced the effects of flooding. The exact size of the population cannot be determined because no official data is currently available on individuals with these characteristics, including information regarding their exposure to flood-related information via Instagram. Therefore, this study employed purposive sampling to ensure that the selected respondents met the study's requirements. Respondent criteria included residing in Semarang City, having been directly affected by flooding, accessing flood information via Instagram at least three times, being part of the Generation Z age group, and being willing to provide the Instagram account used for verifying information exposure.

Data collection was conducted through two channels: online and offline. For the online method, the questionnaire was distributed using the SurveyMonkey® platform via WhatsApp groups and with the assistance of several Instagram accounts that had a following in the Semarang area. Meanwhile, offline data collection was conducted in several flood-affected areas with the support of youth organizations, such as Karang Taruna, as well as local community leaders. A combination of these two methods was applied to expand the scope of respondents while increasing the likelihood of recruiting participants who matched the characteristics of the target population.

During the study period, a total of 330 responses were collected. All incoming data were then reviewed and screened based on the established research criteria. A total of 98 responses were excluded because they did not meet the requirements, such as not residing in Semarang City, never having been directly affected by flooding, never or less than three times accessing flood information via Instagram, not listing an Instagram account, or being outside the Generation Z age range. After the screening process was completed, 232 responses were deemed suitable for analysis. This number was considered sufficient for simple linear regression analysis as it exceeds the minimum sample size recommended in research methodology literature, thereby enabling the production of stable parameter estimates and adequate statistical power (Jenkins & Quintana-Ascencio, 2020). Additionally, the study collected demographic information on the respondents, including gender, age, education level, occupation, region of residence, and frequency of Instagram use. This data is presented in the results section.

This study was conducted in four main stages. The first stage involved distributing questionnaires and collecting data from respondents who met the study criteria. The second stage included data verification, filtering, and cleaning to ensure the quality of the data for analysis. Next, instrument validation and statistical analysis were conducted to test the research hypotheses. The final stage involved interpreting the research results and drawing conclusions based on the empirical findings obtained. Since this study used a quantitative survey design with a single data collection method, triangulation was not applied. Instead, data quality was ensured through strict respondent selection, instrument validation, and verification of various statistical assumptions prior to analysis.

All variables were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The crisis information framing variable was adapted from

concepts developed by Björck (2016), Knight (1999), and An & Gower (2009). The measurement of this variable comprises aspects of problem definition, identification of causes, and emphasis on public opinion in the delivery of crisis information. The anxiety variable was measured using indicators adapted from Marteau & Bekker (1992). The construct was operationalized as a two-dimensional affect measure consisting of negative affect (tense, nervous, and worried) and reverse-coded positive affect (calm, relaxed, and relieved), in order to capture both negative and low-anxiety emotional states. Meanwhile, the tranquility variable was measured by adapting an instrument developed by Chan et al. (2023), which includes an individual's ability to calm themselves, maintain emotional stability, remain calm when facing uncertainty, and generally experience a more peaceful psychological state.

The quality of the research instrument was evaluated through validity and reliability tests. The validity of each item was tested using Pearson's item-total correlation to determine each item's ability to represent the construct being measured. Items that showed a significant correlation with the total construct score were deemed valid. Furthermore, the reliability of the instrument was measured using Cronbach's Alpha coefficient. An alpha value above 0.70 was used as an indicator that the instrument has a good level of internal consistency and is therefore suitable for research use (Rusmana et al., 2025; Suhartini et al., 2021).

Data analysis was performed using IBM SPSS Statistics version 30. Before hypothesis testing was conducted, the data were first examined to ensure their compliance with the assumptions of regression. The relationship between variables was tested through a linearity test using ANOVA-based linearity test, based on the significance value of the deviation from linearity. The relationship between variables was deemed linear if the significance value of the deviation from linearity was greater than 0.05 (Casson & Farmer, 2014). With a sample size of 232 respondents, the data distribution was assumed to be approximately normal based on the Central Limit Theorem, which states that the sample distribution will increasingly approach a normal distribution as the sample size increases (Magsalay, 2025). Additionally, residual analysis was performed to ensure there were no outliers that could affect the validity of the regression model.

Hypothesis testing was conducted using two simple linear regression models. The first model was used to test the effect of crisis information framing on anxiety, while the second model was used to test the effect of crisis information framing on tranquility. The significance of the relationship between variables was determined through a t-test with a significance level of 0.05 (Mondal, 2008). Additionally, the model's ability to explain the variation in the dependent variable was analyzed using the coefficient of determination (R^2). Rather than focusing solely on statistical significance, this study also considered effect sizes to provide a more comprehensive picture of the practical relevance of the research findings.

This study was conducted in accordance with the principles of social research ethics. Before completing the questionnaire, respondents were provided with information regarding the study's objectives, the procedures to be followed, and their rights as participants. Participation was voluntary, and respondents had the right to withdraw at any time without any consequences. Consent to participate was obtained through an informed consent process presented before the questionnaire was administered. The Instagram account information collected was used solely to verify exposure to flood-related information and was not used to access respondents' personal activities or private content. All data obtained was anonymized and treated confidentially, and used exclusively for academic purposes.

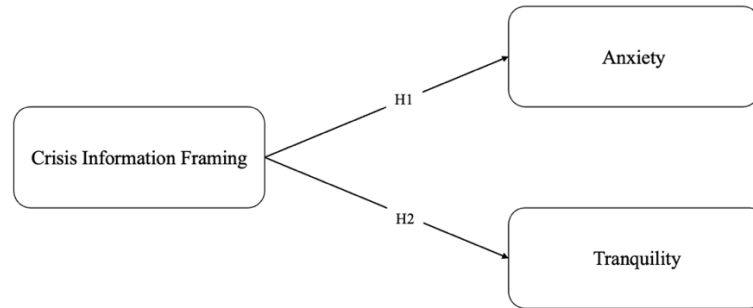


Figure 1. Research model

As shown in Figure 1, this research model illustrates the relationship between crisis information framing as the independent variable and two dependent variables: anxiety and tranquility. This model is used to analyse the impact of crisis information framing on Instagram on the psychological responses of Generation Z individuals affected by flooding in the city of Semarang.

Results and Discussion

The data analysis results from 232 Generation Z respondents who were impacted by the floods in Semarang City are shown in this part. The analysis was conducted in phases, beginning with describing the characteristics of the respondents, evaluating the instrument's quality, verifying the regression model's assumptions, and testing the hypothesis using two simple linear regression models.

Table 1. Descriptive Statistics of Respondents

Variable	Frequency	Percent
Gender		
• Males	91	39.23
• Females	141	60.77
Age		
• 17 - 19	140	60.34
• 20 - 22	29	12.50
• 23 - 25	45	19.40
• 26 - 28	18	7.76
Education		
• Primary Education	1	0.43
• Lower Secondary Education	66	28.45
• Upper Secondary Education	124	53.45
• Associate Degree	5	2.16
• Bachelor's Degree	30	12.93
• Master's Degree	6	2.59

According to Table 1, women make up 60.77% of the respondents, while men make up 39.23%. This percentage indicates that female respondents are more likely to participate in studies on disaster-related topics and to be exposed to crisis information on social media.

The majority of respondents (60.34%) were between the ages of 17-19. 19.40% came from the 23-25 age group, 12.50% from the 20-22 age group, and 7.76% from the 26-28 age group. This distribution demonstrates that Generation Z in late adolescence, a group that is

highly engaged in digital media consumption and psychologically still in the process of developing emotional regulation, dominates the sample.

In terms of education, the majority of respondents (53.45%) had completed upper secondary school, followed by junior secondary school (28.45%) and undergraduate school (12.93%). Given the age distribution of the respondents and the fact that the majority are still enrolled in formal education, Instagram exposure is likely a common occurrence for them.

Once the characteristics of the respondents have been outlined, the following stage is to use validity and reliability tests to make sure the research instrument is indeed capable of measuring the construct under study in an accurate and consistent manner.

Table 2. Validity and Reliability Tests

Variable	Item	r - Value	Cronbach's alpha
Crisis Information Framing (CIF)	CIF.1	0.652	0.772
	CIF.2	0.823	
	CIF.3	0.657	
	CIF.4	0.709	
	CIF.5	0.762	
Anxiety (AX)	AX.1	0.710	0.827
	AX.2	0.679	
	AX.3	0.792	
	AX.4	0.789	
	AX.5	0.755	
	AX.6	0.678	
Tranquility (TQ)	TQ.1	0.733	0.753
	TQ.2	0.779	
	TQ.3	0.818	
	TQ.4	0.723	

The validity test results indicate that all items within the crisis information framing, anxiety, and psychological tranquility variables have adequate item-total correlation values. For the Crisis Information Framing variable, the calculated r-values ranged from 0.652 to 0.823. For the Anxiety variable, the calculated r-values ranged from of 0.678 to 0.792, whilst for the Psychological Tranquility variable they ranged from 0.723 to 0.818. All these values exceeded the required minimum threshold of 0.1078, meaning that each indicator was deemed valid in representing its theoretical construct.

Reliability testing reinforced these findings. Cronbach's Alpha values of 0.772 for Crisis Information Framing, 0.827 for anxiety, and 0.753 for psychological tranquility indicate a good level of internal consistency. This means that the items within each variable had a stable relationship and are not random.

With the validity and reliability criteria met, the analysis can proceed to testing the assumptions of the regression model to ensure the suitability of inferential analysis.

Table 3. Linearity Test Results

Variable	Component	df	F	p-Value
Anxiety (AX)	Linearity	1	41.139	0.000
	Deviation from Linearity	15	0.958	0.501
Tranquility (TQ)	Linearity	1	0.035	0.852
	Deviation from Linearity	15	0.698	0.785

Linearity testing is performed to ensure that the relationships between independent and dependent variables follow a linear pattern, so that simple linear regression can be used appropriately.

In the first model that tested the effect of Crisis Information Framing on Anxiety, the results showed a significant linearity component with an F value of 41.139 and a significance of 0.000. A deviation from linearity value of 0.501 (>0.05) indicates no deviation from the linear pattern. Thus, the relationship between crisis framing and anxiety can be said to be linear and meets the assumptions of the analysis.

In contrast to the first model, the second model that tested the relationship of framing to psychological tranquility showed an insignificant linearity value of 0.852. However, a deviation from the linearity value of 0.785 (>0.05) indicates no deviation from the linear pattern, although the strength of the linear relationship in this model appears to be weak.

After ascertaining the linear relationship pattern, the test is continued with a check of the homogeneity of the residual variance.

Table 4. Heteroscedasticity Test Results

Dependent Variable	Predictor	β	t	p-Value
AX	CIF	0.060	1.213	0.226
TQ	CIF	0.065	1.944	0.053

The heteroscedasticity test was performed to find out whether the residual variance was constant at each predictor value. In the Anxiety model, a significance value of 0.226 indicates the absence of heteroscedasticity issues. Similarly, in the Tranquility model, the significance value of 0.053 is still above the threshold of 0.05. Both results indicate that the residual distribution is homogeneous, so the regression coefficient estimation can be considered stable and unbiased.

Once all model assumptions are met, the analysis proceeds to hypothesis testing through simple linear regression for each dependent variable.

Table 5. Regression Results

Model	B	SE	β	t	p-Value
CIF → AX	0.507	0.079	0.390	6.423	<.001
CIF → AX	-0.010	0.051	-0.012	-0.189	0.850

The regression results showed that crisis information framing played a positive and significant role in Anxiety, with a regression coefficient of 0.507. A t-value of 6.423 with a significance level below 0.001 indicates that the role is statistically significant. A standardized beta coefficient of 0.390 suggests that framing has a significant contribution in explaining anxiety variations. These findings indicate that the higher the intensity or strength of crisis information framing on Instagram, the higher the level of anxiety felt by respondents. This relationship is proportional and consistent with the initial assumptions of the study.

In contrast to the first model, the regression results in the second model showed that Crisis Information Framing did not play a significant role in Tranquility. A regression coefficient of -0.010 with a significance value of 0.850 suggests that the framing variation does not explain a significant change in the level of psychological tranquility. Although crisis framing can increase anxiety, the variable does not have predictive power on the dimension of psychological tranquility in respondents.

The findings of the study show that Crisis Information Framing plays a positive and significant role in the anxiety of Generation Z in Semarang City. These findings confirm that the way crisis information is constructed and presented through Instagram has real

psychological consequences. Framing that highlights threats, uncertainties, the impact of damage, as well as potential future risks, serves as a cognitive stimulus that accelerates the evaluation of hazards by individuals. According to studies, the use of risk-reinforcing framing significantly increases risk perception (Xie et al., 2023). Visual media such as Instagram, where narrative and visual representations reinforce the perception of the urgency of risk, thereby triggering a rapid and reactive emotional response.

Theoretically, this finding can be explained through the Situational Crisis Communication Theory (SCCT) developed by W. Timothy Coombs. The SCCT emphasizes that the public's perception of the crisis is greatly influenced by the attribution of responsibility and communication strategies used by the organization or related parties (Coombs, 2007). When crisis information is framed with an emphasis on serious impacts or failures of situation management, the public tends to attribute higher risks. In this framework, framing is not just the presentation of facts, but a mechanism of meaning-formation that affects emotional evaluation. The increased anxiety found in this study suggests that exposure to crisis framing encourages a more intense threat attribution process, even though respondents have had repeated experiences with flood events.

However, the results in the second model showed that Crisis Information Framing did not affect psychological tranquility. This difference in results is an important point of analysis because it indicates that the emotional response to the crisis is not symmetrical. Anxiety and tranquility are not two ends of the same continuum, but rather two psychological constructs with different mechanisms of formation. If anxiety is a short-term affective response to threat perception, then tranquility is more reflective of the stability of emotional regulation formed through long-term experience and adaptation (Shi et al., 2023; Chellappa & Aeschbach, 2022).

According to SCCT, crisis communication tactics are intended to shape opinions and safeguard an organization's reputation; nevertheless, their effect on the audience's emotional state may differ based on the collective experience (Yue Hu et al., 2025). Nearly every year, flooding occurs in Semarang City. Risk habituation, a psychological process in which people grow increasingly acclimated to risks that occur regularly, may result from this pattern of recurring events. Though it lessens the severity of the disruption to more profound emotional stability, such habituation does not completely eradicate concern.

This condition explains why crisis framing continues to increase situational anxiety but fails to significantly reduce psychological tranquility. Respondents may feel apprehension when they see the dramatic content of floods, but at the same time, they have developed a cognitive schema that floods are predictable seasonal events. Thus, there is a separation between instantaneous emotional responses and long-term emotion regulation structures.

Additionally, these results demonstrate that crisis communication typically has activation rather than transformation impacts in the setting of recurring disasters. Although information framing raises attention and activates risk awareness, it is insufficient to alter the underlying psychological conditions that have been molded by years of collective experience. This contributed to the advancement of SCCT by demonstrating that people's risk exposure history and messaging tactics both affect how well crisis messages affect public sentiment.

This study highlights the need for a contextual understanding of the impact of crisis communication on digital audiences. Framing may have a more detrimental effect on emotional stability in communities that are not yet used to calamities. However, framing serves more as an amplifier of awareness than a disruptor of peace in a culture that is frequently exposed to dangers like what occurred in Semarang City. This distinction is crucial for the creation of social media-based crisis communication models, particularly when it comes to the younger population that is linked to the internet.

Conclusion

The results of the study indicate that the framing of crisis information shared on Instagram has a positive and significant effect on the anxiety levels of Generation Z individuals affected by flooding in Semarang. This means that the way crisis information is constructed and communicated through social media can influence how individuals perceive the risks and challenges they face. In the context of disasters, repeated exposure to information via Instagram allows users to receive crisis messages with high intensity. This situation can make people more vigilant about existing threats, but at the same time, it can also heighten anxiety levels.

Conversely, this study found no significant association between the framing of crisis information and tranquility. This suggests that anxiety and psychological calmness are two distinct phenomena, and thus are not always influenced by the same factors. Crisis information on social media is more likely to trigger immediate emotional responses in the short term. However, such information does not necessarily foster a more stable psychological state in the long term. In other words, a person's level of tranquility may be influenced by factors other than how crisis information is conveyed.

From a theoretical perspective, this study contributes to digital crisis communication research, particularly regarding the impact of crisis information framing on the psychological state of the audience. This study demonstrates that the influence of crisis information framing does not exert uniform effects across all psychological aspects. Framing has been shown to be more strongly associated with increased anxiety than in fostering psychological tranquility. This extends our understanding of Situational Crisis Communication Theory, particularly within the context of crisis communication occurring via social media. Furthermore, the findings reinforce the view that anxiety and tranquility should be treated as distinct psychological constructs in crisis communication studies. By integrating crisis communication perspectives, media framing theory, and disaster psychology, this study contributes to the literature on the psychological impacts of social media in urban disasters. This is particularly important in developing countries, which have remain underexplored in previous research.

In practical terms, the findings of this study are relevant to local governments, disaster management agencies, humanitarian organizations, and public communication practitioners. Crisis communication strategies should not focus solely on conveying information about the threats and risks faced by the public. The information disseminated should also include messages that are adaptive, solution-oriented, and supportive of mitigation efforts. Open and transparent communication regarding self-protection measures, safety procedures, access to assistance, and updates on disaster response can help the public better manage their emotional responses. Thus, the role of crisis communication extends beyond raising awareness of risks; it also plays a crucial part in strengthening the public's psychological resilience when facing emergency situations.

This study also shows that digital literacy is crucial, especially for Generation Z, who frequently use social media to obtain information during disasters. Digital literacy is not just about finding and accessing information, but also about assessing the credibility of those sources. The public needs to be equipped with the ability to understand the context of risk messages, distinguish between official and unofficial information, and manage the emotional responses that arise after viewing crisis-related content. These skills are particularly important because Generation Z is highly active on social media, meaning emotions can spread rapidly through these platforms.

Although this study yielded important findings, there are still several limitations. First, this study employed a cross-sectional design, so it can only describe conditions at a single point in time and cannot yet explain individuals' psychological changes throughout the disaster phase. Second, this study focused solely on the Instagram platform. Therefore, the results must be interpreted with caution when applied to other social media platforms with different

communication characteristics. Third, this study did not include several psychosocial factors that could potentially influence the relationships between variables, such as the severity of the disaster experience, social support, emotional regulation skills, level of trust in institutions, or digital literacy.

To better understand how communities respond to disasters, future research should employ a longitudinal design. This approach will allow researchers to observe the dynamics of communities' psychological responses at various stages of a disaster. Future research should also develop a more comprehensive model by considering factors such as digital literacy, emotional regulation skills, trust in information sources, and prior experience in dealing with disasters. Additionally, research should examine various social media platforms and regions with distinct disaster characteristics. In this way, researchers can better understand how digital crisis communication influences the public's psychological response in various situations.

Acknowledgments

The authors express their appreciation and gratitude to the Ministry of Higher Education, Science, and Technology of the Republic of Indonesia for the funding support provided through the 2025 research grant program. Gratitude is also extended to the residents of coastal areas affected by the floods in Semarang City, as well as to the local community and related institutions, who have provided cooperation and support so that the data collection process in this study could be carried out properly.

Daftar Pustaka

- An, S.-K., & Gower, K. K. (2009). How do the news media frame crises? A content analysis of crisis news coverage. *Public Relations Review*, 35(2), 107–112. <https://doi.org/10.1016/j.pubrev.2009.01.010>
- Andriany, D., & Triwardhani, I. J. (2025). News consumption behavior of Generation Z In the Reading Community Via Instagram. *Edunity: Kajian Ilmu Sosial Dan Pendidikan*, 4(1), 43–53. <https://doi.org/10.57096/edunity.v4i1.336>
- Bhuiyan, T. R., Er, A. C., Muhamad, N., & Pereira, J. J. (2021). The socioeconomic impact of climate-related hazards: flash flood impact assessment in Kuala Lumpur, Malaysia. *Natural Hazards*, 109(2), 1509–1538. <https://doi.org/10.1007/s11069-021-04887-3>
- Björck, A. (2016). Crisis typologies revisited: An interdisciplinary approach. *Central European Business Review*, 5(3), 25–37. <https://doi.org/10.18267/j.cebr.156>
- Borah, G., & Saikia, N. (2025). Effect of 'losses' and other secondary stressors on the association between flooding and psychological health outcomes: A cross-sectional study in Bongaigaon District, India. *Journal of Biosocial Science*, 57(3), 400–428. <https://doi.org/10.1017/S0021932025000136>
- Bosanac, D., & Luic, L. (2021). Importance of Digital Literacy in the Process of Confronting the Stress During COVID-19 Pandemic. In *Public Health and Informatics (pp. 1041-1045)*, IOS Press. <https://doi.org/10.3233/SHTI210343>
- Bukar, U. A., Sidi, F., Jabar, M. A., Nor, R. N. H. B., Abdullah, S., & Ishak, I. (2022). A multistage analysis of predicting public resilience of impactful social media crisis communication in flooding emergencies. *IEEE Access*, 10, 57266–57282. <https://doi.org/10.1109/ACCESS.2022.3176963>
- Casson, R. J., & Farmer, L. D. (2014). Understanding and checking the assumptions of linear regression: a primer for medical researchers. *Clinical & Experimental Ophthalmology*, 42(6), 590–596. <https://doi.org/10.1111/ceo.12358>
- Chan, R. M. K., Mak, W. W. S., & Yu, B. C. L. (2023). Going beyond mindfulness: How concentration and tranquility commonly co-Arising with mindfulness account for mental

- health. *International Journal of Environmental Research and Public Health*, 20(8), 5470. <https://doi.org/10.3390/ijerph20085470>
- Charoensukmongkol, P., & Phungsoonthorn, T. (2022). The interaction effect of crisis communication and social support on the emotional exhaustion of university employees during the COVID-19 crisis. *International Journal of Business Communication*, 59(2), 269–286. <https://doi.org/10.1177/2329488420953188>
- Chellappa, S. L., & Aeschbach, D. (2022). Sleep and anxiety: From mechanisms to interventions. *Sleep Medicine Reviews*, 61, 101583. <https://doi.org/10.1016/j.smr.2021.101583>
- Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. *Corporate Reputation Review*, 10(3), 163–176. <https://doi.org/10.1057/palgrave.crr.1550049>
- Dujardin, S., Arifi, D., Schmidt, S., Linard, C., & Resch, B. (2025). Tracing online flood conversations across borders: a watershed-level analysis of geo-social media topics during the 2021 European flood. *Natural Hazards and Earth System Sciences*, 25(7), 2351–2369. <https://doi.org/10.5194/nhess-25-2351-2025>
- Dwinanda, I. G., Adelia, K. A. C., Wilda, R. W., Afli, F., Kaloka, T. P., & Pratiwie, D. L. (2024). Predictive mapping of hydrometeorological disaster prone areas in Central Kalimantan. *Jurnal Penelitian Pendidikan IPA*, 10(2), 811–819. <https://doi.org/10.29303/jppipa.v10i2.6238>
- Farhan, M., Achmad, A., & Putri, C. E. (2025). Pemahaman gen z terhadap testimoni digital dalam storytelling instagram. *Jurnal Cyber PR*, 5(2), 146–157. <https://doi.org/10.32509/cyberpr.v5i2.6722>
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European Psychologist*, 18(1), 12–23. <https://doi.org/10.1027/1016-9040/a000124>
- Guo, L., Su, C. C., & Chen, H.-T. (2025). Do news frames really have some influence in the real world? A computational analysis of cumulative framing effects on emotions and opinions about immigration. *The International Journal of Press/Politics*, 30(1), 211–231. <https://doi.org/10.1177/19401612231204535>
- Han, Z., Shen, M., Liu, H., & Peng, Y. (2022). Topical and emotional expressions regarding extreme weather disasters on social media: A comparison of posts from official media and the public. *Humanities and Social Sciences Communications*, 9(1), 421. <https://doi.org/10.1057/s41599-022-01457-1>
- Heanoy, E. Z., & Brown, N. R. (2024). Impact of natural disasters on mental health: Evidence and implications. *Healthcare*, 12(18), 1812. <https://doi.org/10.3390/healthcare12181812>
- Hilberts, S., Govers, M., Petelos, E., & Evers, S. (2025). The impact of misinformation on social media in the context of natural disasters: Narrative Review. *JMIR Infodemiology*, 5, e70413–e70413. <https://doi.org/10.2196/70413>
- Jenkins, D. G., & Quintana-Ascencio, P. F. (2020). A solution to minimum sample size for regressions. *PLOS ONE*, 15(2), e0229345. <https://doi.org/10.1371/journal.pone.0229345>
- Knight, M. G. (1999). Getting past the impasse: Framing as a tool for public relations. *Public Relations Review*, 25(3), 381–398. [https://doi.org/10.1016/S0363-8111\(99\)00016-8](https://doi.org/10.1016/S0363-8111(99)00016-8)
- Leal, P. C., Goes, T. C., da Silva, L. C. F., & Teixeira-Silva, F. (2017). Trait vs. state anxiety in different threatening situations. *Trends in Psychiatry and Psychotherapy*, 39(3), 147–157. <https://doi.org/10.1590/2237-6089-2016-0044>
- Li, L., Du, Y., Ma, S., Ma, X., Zheng, Y., & Han, X. (2023). Environmental disaster and public rescue: A social media perspective. *Environmental Impact Assessment Review*, 100, 107093. <https://doi.org/10.1016/j.eiar.2023.107093>

- Li, W., Haunert, J., Knechtel, J., Zhu, J., Zhu, Q., & Dehbi, Y. (2023). Social media insights on public perception and sentiment during and after disasters: The European floods in 2021 as a case study. *Transactions in GIS*, 27(6), 1766–1793. <https://doi.org/10.1111/tgis.13097>
- Liu, C., & Liu, Y. (2020). Media exposure and anxiety during COVID-19: The mediation effect of media vicarious traumatization. *International Journal of Environmental Research and Public Health*, 17(13), 4720. <https://doi.org/10.3390/ijerph17134720>
- Magsalay, R. J. M. (2025). Quantifying central limit theorem convergence: A monte carlo simulation approach to minimum sample size. *International Journal of Research and Innovation in Social Science*, IX(VIII), 639–644. <https://doi.org/10.47772/IJRISS.2025.908000050>
- Markhvida, M., Walsh, B., Hallegatte, S., & Baker, J. (2020). Quantification of disaster impacts through household well-being losses. *Nature Sustainability*, 3(7), 538–547. <https://doi.org/10.1038/s41893-020-0508-7>
- Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology*, 31(3), 301–306. <https://doi.org/10.1111/j.2044-8260.1992.tb00997.x>
- Marzouki, Y., Aldossari, F. S., & Veltri, G. A. (2021). Understanding the buffering effect of social media use on anxiety during the COVID-19 pandemic lockdown. *Humanities and Social Sciences Communications*, 8(1), 47. <https://doi.org/10.1057/s41599-021-00724-x>
- Mondal, D. (2008). On the test of significance of linear multiple regression coefficients. *Communications in Statistics - Simulation and Computation*, 37(4), 713–730. <https://doi.org/10.1080/03610910701753853>
- Ogbodo, J. N., Onwe, E. C., Chukwu, J., Nwasum, C. J., Nwakpu, E. S., Nwankwo, S. U., Nwamini, S., Elem, S., & Iroabuchi Ogbaeja, N. (2020). Communicating health crisis: A content analysis of global media framing of COVID-19. *Health Promotion Perspectives*, 10(3), 257–269. <https://doi.org/10.34172/hpp.2020.40>
- Oo, Z., & Dai, Y. (2025). News media effects on policy priorities: A second-level agenda-setting analysis of Belt and Road Initiative (BRI) Projects in Myanmar. *Journalism and Media*, 6(1), 15. <https://doi.org/10.3390/journalmedia6010015>
- Rowbotham, S., McKinnon, M., Marks, L., & Hawe, P. (2019). Research on media framing of public policies to prevent chronic disease: A narrative synthesis. *Social Science & Medicine*, 237, 112428. <https://doi.org/10.1016/j.socscimed.2019.112428>
- Rusmana, D., Fattah, F. A., Zutiasari, I., & Mala, I. K. (2025). Realizing creative teachers: Validity and reliability test of instruments for creative teaching behavior, proactive personality, information literacy, and knowledge sharing. *East Asian Journal of Multidisciplinary Research*, 4(8), 3983–3996. <https://doi.org/10.55927/eajmr.v4i8.331>
- Schaller, S. (2025). Mental health risks of pandemic-related media communication: The mediating roles of distinct types of perceived threat. *Risk Analysis*, 45(10), 3201–3217. <https://doi.org/10.1111/risa.70079>
- Scheiwiller, S., & Zizka, L. (2021). Strategic responses by European airlines to the Covid-19 pandemic: A soft landing or a turbulent ride? *Journal of Air Transport Management*, 95, 102103. <https://doi.org/10.1016/j.jairtraman.2021.102103>
- Setiyono, H., Sugianto, D. N., Helmi, M., Handoyo, G., Pratikto, I., & Ario, R. (2023). Rob analysis on the coast of semarang city (central java, indonesia) on May 23, 2022 based on tidal data and inundation distribution. *EPH - International Journal of Agriculture and Environmental Research*, 9(1), 23–28. <https://doi.org/10.53555/eijaer.v9i1.69>
- Shahbazi, M., & Bunker, D. (2024). Social media trust: Fighting misinformation in the time of crisis. *International Journal of Information Management*, 77, 102780. <https://doi.org/10.1016/j.ijinfomgt.2024.102780>

- Shi, H.-J., Wang, S., Wang, X.-P., Zhang, R.-X., & Zhu, L.-J. (2023). Hippocampus: Molecular, cellular, and circuit features in anxiety. *Neuroscience Bulletin*, 39(6), 1009–1026. <https://doi.org/10.1007/s12264-023-01020-1>
- Stieglitz, S., Mirbabaie, M., & Milde, M. (2018). Social positions and collective sense-making in crisis communication. *International Journal of Human–Computer Interaction*, 34(4), 328–355. <https://doi.org/10.1080/10447318.2018.1427830>
- Suhartini, R., Ekohariadi, Nurlaela, L., Wahyuningsih, U., Yulistiana, & Prihatina, Y. I. (2021). Validity, reliability, intra-rater instrument parameter teaching factory and learning outcomes of industrial clothing. In *International Joint Conference on Arts and Humanities 2021 (IJCAH 2021) (pp. 1230-1239)*. Atlantis Press. <https://doi.org/10.2991/assehr.k.211223.214>
- Tao, T. J., Chan, F. H. F., Jin, J., & Barry, T. J. (2022). The effects of efficacy framing in news information and health anxiety on coronavirus-disease-2019-related cognitive outcomes and interpretation bias. *Journal of Experimental Psychology: General*, 151(11), 2943–2956. <https://doi.org/10.1037/xge0001223>
- Wardhani, P. I., Susilawati, S. A., Wibowo, Y. A., Dewi, R. P., Widiyatmoko, W., Hafida, S. H. N., Maulana, E., Utami, S., & Hayatun, I. (2025). Identification of social media approach for strengthening the Generation Z disaster capacity on drought issues. *Progress in Disaster Science*, 28, 100467. <https://doi.org/10.1016/j.pdisas.2025.100467>
- Widada, S., Zainuri, M., Yulianto, G., Satriadi, A., Jati Wijaya, Y., & Helmi, M. (2020). Mitigation of floodwaters inundation due to land subsidence in the coastal area of Semarang City. *IOP Conference Series: Earth and Environmental Science*, 530(1), 012006. <https://doi.org/10.1088/1755-1315/530/1/012006>
- Won, J.-Y., Kim, H.-J., Jeon, E.-G., Kim, Y.-T., & Lee, Y.-R. (2025). Media coverage volume and expert risk perception in risk assessment: the moderating role of domain expertise. *Journal of Risk Research*, 28(7), 747–767. <https://doi.org/10.1080/13669877.2025.2553097>
- Xie, C., Zhang, J., Huang, Q., Chen, Y., & Morrison, A. M. (2022). An analysis of user-generated crisis frames: Online public responses to a tourism crisis. *Tourism Management Perspectives*, 41, 100931. <https://doi.org/10.1016/j.tmp.2021.100931>
- Xie, C., Zhang, J., & Huang, S. (2023). Effect of risk message framing on tourists' travel intention: Roles of resilience and impulsivity. *Journal of Travel Research*, 62(4), 802–819. <https://doi.org/10.1177/00472875221095212>
- Yue Hu, Jamilah Binti Jama, & Suhaini binti Muda. (2025). Effectiveness evaluation of crisis communication strategies in guiding public emotions on social media platforms. *Environment and Social Psychology*, 10(10). <https://doi.org/10.59429/esp.v10i10.3822>
- Zhou, X. (2025). Social media communication and shifting attitudes toward social change across generations: a comparative study of Gen Z and older cohorts. *Advances in Social Behavior Research*, 16(4), 1–5. <https://doi.org/10.54254/2753-7102/2025.23512>