

Facebook Live Disaster Risk Communication and Community Preparedness among Flood-Prone Residents in Marikina City

Jomer, G. Evangelista^{1*}, Jacqueline M. Calaycay¹, André N. Canaria^{1,2}, Joshua Benedict H. Fandiño¹

¹*Pamantasan ng Lungsod ng Marikina*

*jomer.12.evangelista@gmail.com, ²andrecanaria89@gmail.com

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ABSTRACT

Flooding remains a recurring hazard in Marikina City, Philippines, requiring timely and effective disaster communication. This study examined the effectiveness of Facebook Live as a disaster risk communication tool and its relationship with community preparedness among residents of selected flood-prone barangays. Using a quantitative descriptive-correlational cross-sectional design, data were collected from 242 adult respondents through the Facebook Live Disaster Risk Communication Scale (FL-DRCS). Results showed that Facebook Live communication was perceived as highly effective in terms of clarity, timeliness, usefulness, and situational awareness ($M = 4.31$). Two-way communication quality

was also rated high ($M = 3.85$), while perceived LGU responsiveness obtained the highest rating ($M = 4.36$). Community preparedness was likewise rated high ($M = 4.27$). Pearson correlation analysis revealed a significant moderate positive relationship between Facebook Live disaster communication and community preparedness ($r = .560$, $p < .001$). Findings indicate that Facebook Live serves as an effective digital communication platform that enhances preparedness behavior during flooding events. The study recommends strengthening interactive communication mechanisms and integrating Facebook Live into formal flood risk communication policies.

Keywords: *Facebook Live, disaster communication, flood preparedness, community resilience, Marikina City*

INTRODUCTION

Flooding is one of the most common and destructive disasters in the Philippines, particularly in highly urbanized and river-adjacent cities such as Marikina. Due to its geographical location along the Marikina River Basin, the city frequently experiences flooding that threatens lives, disrupts transportation, and damages infrastructure. While structural flood-control measures are important, the effectiveness of disaster response largely depends on timely and understandable communication between authorities and residents.

With the rise of digital technology, local government units (LGUs) increasingly use social media as a communication platform during emergencies. Among these, Facebook Live has become a widely utilized tool by the Marikina Disaster Risk Reduction and Management Office (DRRMO) for providing real-time flood monitoring updates, river water levels, rainfall conditions, and advisories.

Despite the popularity of Facebook Live, limited studies have examined its effectiveness as a livestream-based disaster communication platform. Specifically, there is a lack of empirical evidence on how Facebook Live influences situational awareness, trust in government responsiveness, and preparedness actions among residents.

This study aimed to determine the level of Facebook Live disaster risk communication and its relationship with community preparedness among flood-prone residents in Marikina City.

METHODS

Research design

This study utilized a quantitative descriptive-correlational cross-sectional design.

Participants

A total of 242 adult residents from selected flood-prone barangays in Marikina City participated in the study, namely:

- Malanday
- Tumana
- Nangka
- Sto. Niño
- Concepcion Uno

Sampling technique

Purposive sampling with quota allocation was employed.

Research Instrument

Data were gathered using the Facebook Live Disaster Risk Communication Scale (FL-DRCS), a researcher-developed questionnaire consisting of:

1. Demographic profile
2. Perceived Effectiveness
3. Two-Way Communication Quality
4. Perceived LGU Responsiveness
5. Community Preparedness

The instrument demonstrated acceptable reliability with Cronbach's alpha = .855.

Data Gathering Procedure

Permission was secured from barangay officials. Surveys were administered through Google Forms and printed questionnaires.

Statistical Treatment

- Frequency and Percentage
- Mean
- Pearson Product-Moment Correlation Coefficient

Significance level was set at 0.05.

RESULTS

This section presents the findings of the study on Facebook Live disaster risk communication and community preparedness among residents of selected flood-prone barangays in Marikina City. The results are organized according to the statement of the problem and include the respondents' demographic profile, level of Facebook Live disaster communication, level of community preparedness, and the relationship between the variables.

Demographic Profile of Respondents

A total of 242 residents participated in the study. In terms of age, the majority of respondents were 18–24 years old (62%), followed by those aged 25–34 years old (25%). Respondents aged 35–59 years old comprised 9%, while 4% were senior citizens aged 60 years and above. This indicates that the study population was largely composed of young adults, who are generally more active users of digital platforms such as Facebook.

With regard to gender, 51% were female, 45% were male, and 5% preferred not to disclose their gender. The relatively balanced gender distribution suggests that Facebook Live disaster communication reaches both male and female residents.

As to civil status, the majority were single (73%), followed by married respondents (17%), while 5% were widowed and 5% were separated. The high percentage of single respondents is consistent with the predominance of younger participants in the study.

In terms of barangay of residence, the largest number of respondents came from Tumana (34%), followed by Malanday (26%), Nangka (16%), Sto. Niño (14%), and Concepcion Uno (10%). These barangays are among the most flood-prone communities in Marikina City, making them relevant locations for examining disaster communication practices.

Regarding proximity to the Marikina River, 48% of respondents lived less than 100 meters from the river, 35% resided 100–500 meters away, and 18% lived more than 500 meters away. This finding indicates that many respondents were directly exposed to flood risks due to their close distance to the river.

A large majority (81%) reported that they had previously experienced flooding, while only 19% had no flood experience. This suggests that most respondents were already familiar with the realities and consequences of flood events.

As to social media use, 84% reported daily use, 14% used social media several times a week, and 2% used it occasionally. None reported rare use. This demonstrates the strong presence of social media in the daily lives of respondents.

Finally, in terms of viewing DRRMO Facebook Live updates, 56% reported watching during every flood event, 19% watched often, 18% sometimes, 6% rarely, and 1% never watched. This indicates that Facebook Live has become a commonly used source of real-time flood information among residents.

Level of Facebook Live Disaster Risk Communication

The level of Facebook Live disaster risk communication was assessed using three dimensions: perceived effectiveness, two-way communication quality, and perceived LGU responsiveness.

Table 1. *Level of Facebook Live Disaster Risk Communication*

Variable	Mean	Interpretation
Perceived Effectiveness	4.31	High
Two-Way Communication Quality	3.85	High
Perceived LGU Responsiveness	4.36	High

Perceived Effectiveness

The overall mean for perceived effectiveness was 4.31, interpreted as High. Among the indicators, the statement “The updates help me understand flood risks in my area” obtained the highest mean of 4.44, followed closely by “The Facebook Live updates clearly explain the current flood situation” with a mean of 4.43.

Other indicators such as usefulness during flood events (4.27), accuracy and reliability (4.27), ease of understanding (4.32), and timeliness (4.14) were likewise rated high. These findings indicate that respondents generally viewed Facebook Live broadcasts as clear, useful, and informative during flooding situations.

Two-Way Communication Quality

The overall mean for two-way communication quality was 3.85, interpreted as High. The highest-rated statement was “The livestream allows residents to express their concerns” with a mean of 4.13.

This was followed by clarifications are provided when viewers ask questions (3.86), concerns in the comment section are acknowledged (3.80), feedback is considered during livestreams (3.81), communication feels interactive rather than one-way (3.78), and DRRMO personnel respond to questions during livestream broadcasts (3.73).

Although still interpreted as high, this dimension received the lowest mean among the three communication dimensions, suggesting room for improvement in responsiveness and interaction.

Perceived LGU Responsiveness

Perceived LGU responsiveness obtained the highest overall mean among the dimensions at 4.36, interpreted as High. The statement “The livestream demonstrates transparency in reporting flood conditions” registered the highest mean of 4.44.

Other indicators also received high ratings: prompt updates during critical flood events (4.39), trust in information shared by the LGU (4.39), accountability in managing flood risks (4.35), preparedness during flood situations (4.33), and responsiveness to community needs (4.28).

These results indicate that respondents generally perceived the local government as responsive, transparent, and prepared during flooding emergencies.

Level of Community Preparedness

The overall mean for community preparedness was 4.27, interpreted as High. Among the indicators, the highest mean was obtained by “I secure important belongings when advised during livestream updates” at 4.45.

Table 2. *Level of Community Preparedness*

Variable	Mean	Interpretation
Community Preparedness	4.27	High

These findings suggest that respondents were generally prepared and responsive to flood-related advisories communicated through Facebook Live.

Relationship Between Facebook Live Disaster Risk Communication and Community Preparedness

Pearson Product-Moment Correlation was used to determine the relationship between Facebook Live disaster risk communication and community preparedness. Results revealed a moderate positive correlation ($r = .560$) with a p-value of $< .001$, indicating a statistically significant relationship.

This means that as the level of Facebook Live disaster communication increases, the level of community preparedness also tends to increase. Residents who perceived Facebook Live updates as

effective, interactive, and responsive were more likely to report higher levels of preparedness behaviors such as monitoring updates, preparing supplies, safeguarding belongings, and willingness to evacuate.

The null hypothesis stating that there is no significant relationship between Facebook Live disaster communication and community preparedness was therefore rejected.

Summary of Key Findings

Overall, the findings reveal that Facebook Live is a highly valued disaster communication tool among residents of flood-prone barangays in Marikina City. Respondents perceived the platform as effective, trustworthy, and helpful in promoting preparedness during flood events. Furthermore, stronger disaster communication through Facebook Live was significantly associated with higher levels of community preparedness.

DISCUSSION

The findings demonstrate that Facebook Live is an effective platform for flood risk communication. Residents perceived livestream updates as clear, timely, and useful, which supports Situation Awareness Theory, emphasizing that real-time information improves individuals' ability to understand evolving hazards and make appropriate decisions during emergencies (Endsley, 1995). The use of visual cues and immediate updates may also enhance comprehension and situational awareness, consistent with previous studies showing that clear and repeated emergency instructions improve public response behavior (van der Wal et al., 2021).

The high rating for perceived LGU responsiveness suggests that regular livestream updates strengthen public trust, transparency, and confidence in local authorities. This finding aligns with Public Service Motivation Theory, which posits that government responsiveness, accountability, and commitment to citizen welfare positively influence institutional credibility (Perry & Wise, 1990). Studies have likewise shown that timely and transparent communication during disasters increases trust and compliance with safety measures (Seeger & Sellnow, 2022; Fullero et al., 2024).

The significant moderate positive correlation between Facebook Live disaster communication and community preparedness supports the Protective Action Decision Model, which explains that individuals are more likely to adopt protective behaviors when they receive credible, understandable, and actionable warning information (Lindell & Perry, 2012). This result is also consistent with the findings of Pascual et al. (2024), who reported that repeated exposure to reliable disaster communication increases preparedness intentions and proactive responses. Thus, improved communication through Facebook Live may encourage residents to prepare emergency supplies, secure valuables, monitor updates, and comply with evacuation orders.

Although two-way communication quality was rated high, it received the lowest mean score among the three communication dimensions. This may indicate that while Facebook Live enables public interaction through comments and questions, the responsiveness or depth of engagement may still be limited. Previous studies emphasized that interactive communication enhances public understanding, reduces uncertainty, and fosters stronger community engagement during crises (Nguyen et al., 2022; Ginzarly et al., 2025). Therefore, stronger moderation and quicker responses during livestreams may further improve effectiveness.

Overall, the study confirms that Facebook Live functions not only as a social media platform but also as a practical disaster communication tool that contributes to preparedness and resilience in flood-prone communities. This supports broader literature highlighting the growing role of digital platforms in disaster governance, early warning systems, and community-based risk reduction (Young et al., 2020; UNDRR, 2024).

CONCLUSION

Facebook Live disaster communication in Marikina City was perceived as highly effective and significantly associated with community preparedness. As the quality of communication improves, preparedness levels among residents also increase. Strengthening livestream interactivity and integrating Facebook Live into official disaster protocols may further enhance flood resilience.

Recommendations

1. Institutionalize Facebook Live as an official disaster warning channel.
2. Improve two-way communication through dedicated moderators during livestreams.
3. Integrate Facebook Live with SMS alerts and barangay warning systems.
4. Conduct public education campaigns on interpreting flood updates.
5. Replicate the study in other flood-prone cities.

References

- Ahmed, S., Rahman, M., & Islam, T. (2022). Decision-making and family structure in disaster preparedness. *Journal of Emergency Management*, 20(4), 255–266. <https://doi.org/10.5055/jem.2022.0543>
- Alsharif, A. H., Qurashi, A., & Aljuaid, M. (2021). Gender differences in knowledge, attitudes, and practices toward health issues: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 18(21), 11312. <https://doi.org/10.3390/ijerph182111312>
- Anson, S., Petersen, K., & Watson, H. (2021). Facilitating two-way public communication in crisis and disaster management. *Crisis Response Journal*. <https://www.crisis-response.com/news/news/facilitating-two-way-public-communication-in-crisis-and-disaster-management>
- Baker, E. J., Lindell, M. K., & Wang, Y. (2019). Tsunami evacuation modeling: Development and application of a protective action decision model. *Natural Hazards Review*, 20(3), 1–12.
- Basher, R. (2021). Global early warning systems for natural hazards: Systematic and people-centered approaches. *Philosophical Transactions of the Royal Society A*, 379(2199). <https://royalsocietypublishing.org/journal/rsta>
- Cabalquinto, E. (2022). Mobilizing Facebook for disaster communication and community resilience in the Philippines. *Asian Journal of Communication*, 32(2), 156–174.
- Cayamanda, K. J. G., P aunlagui, M. M., Bacongus, R. D. T., Quimbo, M. A. T., Tirol, M. S. C., & Camacho, J. D. V. (2020). Towards a community-based risk communication management: The case of flood-vulnerable communities of Davao City.
- Celina, L., & Tolentino, R. (2020). Digital communication practices of LGUs during disasters: A Philippine perspective. *Philippine Journal of Public Administration*, 64(1), 45–62.
- Chatfield, A. T., & Reddick, C. G. (2021). Social media and disaster communication: Enhancing public engagement through digital platforms. FACEBOOK LIVE DISASTER RISK COMMUNICATION... 67
- Chen, X., Liao, Q., & Tan, C. (2020). Livestreaming risk communication: How real-time video enhances citizen response to emergencies. *Journal of Contingencies and Crisis Management*, 28(4), 1–12.
- Congjuico, T. S. (2014). Social media for risk management and emergency response for Philippine local government units. *Journal of Management and Development Studies*, 3, 20–38.
- 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.
- Cruz, R., & Dizon, J. (2020). Evaluating real-time flood warning systems in Metro Manila. *Philippine Journal of Science*, 149(2), 367–378.
- Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554–572.
- David, C. C., Atun, J. M., & Monterola, C. (2016). Disaster information seeking and Facebook use during Typhoon Lando. *Journal of Philippine Communication Research*, 8, 1–20.

- Demir, M., Yilmaz, C., & Aydin, S. (2018). The influence of real-time alerts on disaster preparedness perceptions. *International Journal of Disaster Risk Reduction*, 31, 1–9.
- Endsley, M. R. (1995). Toward a theory of situation awareness in dynamic systems. *Human Factors*, 37(1), 32–64.
- Erokhin, D., Whitworth, B., & Maynard, S. (2024). Social media data for disaster risk management and research. *International Journal of Disaster Risk Reduction*, 93, 1–13.
- Franssen, T., Stijnen, M., Hamers, F., & Schneider, F. (2020). Age differences in demographic, social, and health-related factors associated with loneliness across the adult life span (19–65 years): A cross-sectional study in the Netherlands. *BMC Public Health*, 20, 1118. <https://doi.org/10.1186/s12889-020-09208-0>
- Fullero, A., et al. (2024). Risk communication in disaster-prone areas in Caramoan, Camarines Sur, Philippines. *International Journal of Research and Review*.
- Gao, H., Barbier, G., & Goolsby, R. (2019). Harnessing two-way communication on social media during crises. *Government Information Quarterly*, 36(3), 1–10.
- Ginzarly, M., Teller, J., & Dujardin, S. (2025). Social media use in disaster response: Empowering community resilience. *International Journal of Digital Earth*. FACEBOOK LIVE DISASTER RISK COMMUNICATION. 68
- González-Padilla, D. A., & Tortolero-Blanco, L. (2022). Social media influence in the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*.
- Houston, J. B., et al. (2015). Social media and disasters: A functional framework for understanding communication patterns. *Disasters*, 39(1), 1–22.
- International Journal of Disaster Risk Reduction. (2024). Predictors of risk reduction behavior: Evidence in last-mile communities.
- Kim, H., & Lee, J. (2022). Marital status and disaster vulnerability: Social support and coping capacity. *International Journal of Disaster Risk Reduction*, 72, 102874. <https://doi.org/10.1016/j.ijdr.2022.102874>
- Lee, J., & Chen, H. (2023). Age differences in emergency response and early warning system compliance. *International Journal of Disaster Risk Reduction*, 85, 103456.
- Lindell, M. K., & Perry, R. W. (2012). The protective action decision model: Theoretical modifications and additional evidence. *Risk Analysis*, 32(4), 616–632.
- Liu, B., Fraustino, J., & Jin, Y. (2018). Social media and government responsiveness during emergencies. *Public Relations Review*, 44(5), 1–12.
- López-Marrero, T., & Tschakert, P. (2022). Flood adaptation strategies and community resilience. *Global Environmental Change*, 73, 102458.
- Mesa, R. A., et al. (2025). Social determinants of health and biological age among diverse U.S. adults. *BMC Public Health*, 25, 3215.
- Mikal, J., et al. (2021). People use Facebook as an emergency communication system during pandemic. *University of Minnesota School of Public Health*.
- Mira, K. (2021). Local government digital engagement during Typhoons Rolly and Ulysses. *Philippine Information Review*, 12(2), 112–130.
- Nguyen, K. H., et al. (2022). COVID-19 vaccination intent, perceptions, and reasons for not vaccinating. *American Journal of Public Health*, 112(4), 603–611.
- Ong, M., & Comiso, L. (2019). Perceived LGU preparedness in digital communication. *Asia Pacific Journal of Public Administration*, 41(3), 210–225.
- Ortega, P., & Rosales, L. (2021). Predictors of evacuation behavior during flooding in the Philippines. *International Journal of Disaster Risk Reduction*, 52, 1–10.
- Pérez-Gañán, R., et al. (2022). How do women face the emergency following a disaster? *Natural Hazards*, 116, 51–77. FACEBOOK LIVE DISASTER RISK COMMUNICATION... 69
- Perry, J. L., & Wise, L. R. (1990). The motivational bases of public service. *Public Administration Review*, 50(3), 367–373.
- Ramakrishnan, T., Ngamassi, L., & Rahman, S. (2022). Factors influencing the use of social media for disaster management. *International Journal of Disaster Risk Science*.
- Rexroth, D. F., et al. (2013). Relationship of demographic and health factors to cognition in older adults. *Journal of Aging and Health*, 25(8 Suppl), 128S–146S.
- Reyes, R. S., dela Cruz, M. A., & Santos, J. P. (2022). Effectiveness of barangay DRRM councils in the Philippines. *Journal of Environmental Science and Management*, 25(1), 45–58.

- Santiago, E. (2018). Digital warning systems and preparedness behavior among Metro Manila residents. *Philippine Sociological Review*, 66(2), 95–118.
- Santos, A., & Tiongson, M. (2021). The role of Facebook Live in community response during Typhoon Ulysses. *Journal of Communication and Media Studies*, 9(1), 78–94.
- Seeger, M. W., & Sellnow, T. L. (2022). Risk communication and crisis communication strategies in emergencies.
- Shen, S., Zhang, C., & Gong, X. (2023). Global online social response to a natural disaster. *Humanities and Social Sciences Communications*, 10, 515.
- Siar, S. V., & Lorenzo, P. J. M. (2023). Crisis and risk communication during COVID-19. *Philippine Institute for Development Studies*.
- Slovic, P. (2021). Risk perception and its implications for disaster management. *Risk Analysis*, 41(3), 345–356.
- United Nations Office for Disaster Risk Reduction. (2024). Risk communication and media in early warning systems.
- van der Wal, C. N., Robinson, M. A., & Bru, W. (2021). Evacuation behaviors and emergency communications. *Safety Science*, 136, 105121.
- Vlassoff, C. (2021). Gender differences in determinants and consequences of health behaviors. *Social Science & Medicine*, 277, 113908.
- Wang, Y., Hao, H., & Kang, S. (2023). Disaster risk communication and digital vulnerability. *Natural Hazards Center*.
- World Health Organization. (2022a). Gender and health.
- World Health Organization. (2022b). Risk communication and community engagement. FACEBOOK LIVE DISASTER RISK COMMUNICATION... 70
- World Meteorological Organization. (2022). Gender equality in early warning systems and disaster risk reduction.
- Wukich, C. (2016). Social media use by local governments during disasters. *Journal of Homeland Security and Emergency Management*, 13(2), 1–17.
- Young, C. E., & Verhulst, C. (2020). Social media use during disaster response and recovery phases. *NIST Technical Note 2086*.
- Yu, M., & Yu, X. (2019). Impacts of real-time hazard information on public risk perception. *Natural Hazards*, 97(1), 85–104.