

Evaluation of the Disaster Preparedness among Residents of Valdefuente, Cabanatuan City, Philippines

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Abstract. Disaster preparedness is crucial in ensuring the safety and well-being of individuals and communities in times of emergencies. This study aims to evaluate the level of disaster preparedness among the residents of Valdefuente, Cabanatuan City. The evaluation will be conducted through a survey questionnaire distributed among a representative sample of residents in the community. The questionnaire will assess their knowledge and understanding of different types of disasters, their awareness of the existing disaster response plans and protocols, and their level of preparedness in terms of emergency supplies, evacuation plans, and communication strategies. The findings will provide valuable insights into the current level of disaster preparedness among the residents of Valdefuente, Cabanatuan City. It will identify the strengths and weaknesses in their knowledge, awareness, and preparedness, which can be used to develop targeted interventions and initiatives to enhance their readiness in facing future disasters. Furthermore, it will also contribute to the existing literature on disaster preparedness, particularly in the context of urban communities in the Philippines. It will shed light on the specific challenges and issues faced by the residents of Valdefuente, Cabanatuan City, and offer recommendations for improving their disaster preparedness. Ultimately, the evaluation of disaster preparedness among residents of Valdefuente, Cabanatuan City is essential in promoting a culture of resilience and ensuring the safety and well-being of the community in the face of potential disaster preparedness efforts. The residents of Barangay Valdefuente, Cabanatuan City have answered the questionnaire provided by the researchers, the questionnaire contains the question regarding the preparedness among the residents. The researcher used the likert scale to interpret the result, the result revealed that the residents of Barangay Valdefuente are well prepared for the possible disaster that may occur in the community. The residents stated that the barangay provides food assistance, information and safety facilities/evacuation center and other necessities needed.

Keywords: Disaster preparedness; Emergency supplies; Evacuation plan; Communication strategies

1. Introduction

Valdefuente, Cabanatuan City has traditionally been susceptible to a variety of natural disasters, including earthquakes and typhoons. The region's geographic location, in conjunction with certain climatic and geological tendencies, highlights the vulnerability of its inhabitants to these potentially catastrophic occurrences (Martinez & Santiago, 2021). According to a thorough

analysis of catastrophe incidents during the last ten years, Valdefuente has seen a greater than average frequency of natural disasters, underscoring the critical need for sophisticated disaster preparation plans (Gonzalez & Ramirez, 2021).

Since the frequency and severity of natural disasters have increased globally in recent decades, there has been a great deal of attention paid to the topic of disaster preparation and resilience. Community-based disaster management strategies now prioritize resilience, which is defined as the capacity to foresee, tolerate, and recover from adversity, particularly natural catastrophes (Smith & Cooper, 2019). Preparedness serves as a critical link between the stages before and after a disaster, bridging the gap between anticipation and response. It encompasses various measures that empower individuals, households, organizations, communities, and societies to effectively respond and recover swiftly when faced with disasters. Preparedness involves ensuring that essential resources for effective response are available and that those responsible for responding are well-trained. Common activities associated with disaster preparedness include establishing planning processes for readiness, creating disaster plans, maintaining stockpiles of necessary resources, and building skills and competencies for the effective execution of disaster-related tasks.

Although the overall importance of disaster preparation is well understood, there is a clear gap in the Evaluation of the Valdefuente's disaster preparedness. According to Torres and De Luna (2020), genuine resilience results from a combination of community-driven and top-down, governmental activities. Because of this, a comprehensive assessment of the district's resilience would need a detailed investigation of citizens' levels of preparation, attitudes toward disaster management, and first-hand knowledge of previous tragedies. The need for factual, data-driven insights that may act as the cornerstone for resource allocation, policy formation, and community education programs is what motivated the choice to use a mixed method for this study. The benefits of mixed methods include complementary strengths, flexibility, and increases the response rates. The preparedness of Valdefuente, Cabanatuan City residents to cope and recover from calamitous events like typhoons and earthquakes remains a focal concern for local governance and disaster management agencies. Therefore, this research intends to scrutinize the level of preparedness of the residents of Barangay Valdefuente, Cabanatuan City. Specifically, the study aims to unearth answers to these queries:

1. How may the profile of the respondents be described in terms Age, Sex, Socioeconomic status, Highest Educational attainment, and years in residency?
2. How may the disaster preparedness among residents of valdefuente, Cabanatuan during calamity be described in terms of preparedness protocols they adhere to, Knowledge of available community resources during disaster, Proficiency in survival skills crucial disaster, ownership of emergency kits laden with necessities, participation rates in community disaster drills, familiarity with evacuation routes, local warning systems, and emergency contact points, and actuality of formulated personal and family contingency plans?
3. What are the challenges encountered during a disaster?
4. What are the possible recommendations after this study?

2. Methodology

The researchers used the descriptive research as the design of the study. The study will gather and analyze the different perspectives of respondents from Valdefuente, Cabanatuan City. The research utilizes a descriptive-mixed method approach with an emphasis on empirical and methodological aspects to assess the level of preparedness among Valdefuente residents in Cabanatuan City. Self-administered survey questionnaire will be used to collect information and to elicit the point of views of the respondents. The researchers consider the sequential explanatory design as the suitable methodology for the mixed methods research in this study. The study is perceived as a two-phase project, with an initial collection of quantitative data followed by the subsequent collection of qualitative data. This sequential approach aims to provide a more in-depth explanation of the quantitative results through the integration of qualitative data.

2.1. Sampling Procedure

In an endeavor to evaluate the disaster preparedness of Valdefuente residents in Cabanatuan City, this study explores their capacity to endure and recover from natural calamities, particularly typhoons and earthquakes. Employing statistical analyses, the research delves into the connection between demographic traits, psychological resilience, and actual preparedness measures. The principal respondents comprise Valdefuente residents, chosen through random sampling based on age, gender, socioeconomic standing, and education. The inquiry remains geographically anchored in Valdefuente, a locale with known vulnerability to natural disasters, serving as both a microcosm and a reflection of larger trends in disaster preparedness. Spanning from January to December 2024, the research timeline encompasses data gathering, initial analysis, thorough interpretation, and the final synthesis of findings. However, the study imposes certain delimitations: it restricts itself to quantitative data, excludes man-made disasters, remains geographically circumscribed to Valdefuente, eschews long-term longitudinal assessments, and refrains from entering the terrain of policy evaluation or recommendation. By charting this course, the study aspires to offer empirical foundations for understanding community resilience and disaster preparedness.

2.2. Respondents

The respondents of the study are the residents of the Valdefuente community in Cabanatuan City. The choice of these respondents is crucial to gain specific insights into their preparedness levels in the face of natural disasters, given the region's history and susceptibility to such events. These individuals represent a diverse cross-section of the Valdefuente populace, encompassing various ages, genders, socio-economic backgrounds, and professions. This ensures a comprehensive understanding of the community's overall disaster preparedness and response strategies. These residents were selected using systematic random sampling with a total sample of 173. The number of respondents was determined based on the population size of Valdefuente,

aiming to secure a sample size large enough to be statistically significant and reflective of the broader community. Through structured questionnaires and interviews, the research aims to evaluate their Disaster Preparedness gauging their knowledge, readiness, and overall capability in responding to natural calamities.

3. Results and Discussion

3.1. Profile of the Respondents

The highest proportion of respondents falls within the 21-30 age group, comprising 36.41% of the sample. This is followed by 31-40 years old at 21.38%, 41-50 years old at 23.69%, 51-60 years old at 7.51%, 61-70 years old and 71-80 years old both at 1.15%, and 81-90 years old at 0.5%. Female respondents constitute the majority at 50.865% of the sample, while male respondents make up the remaining 49.13%. The very poor represent 7.51% of respondents, while the poor make up 46.82%, the middle class 39.88%, and the upper middle class 5.78%. The highest level of educational attainment among respondents is high school diploma at 42.77%, followed by college education at 38.15%, and elementary education at 19.07%. The majority of respondents, at 82.08%, have been living in Barangay Valdefuente for seven years or more.

3.2. Disaster preparedness among residents of Valdefuente, Cabanatuan during calamity in terms of scale.

Table 1. Disaster preparedness among residents of Valdefuente, Cabanatuan during calamity in terms of scale.

Indicators	Mean	Remarks
Residents in Valdefuente, Cabanatuan, adhere to preparedness protocols before calamities	3.37	Strongly Agree
The community actively engages in activities that enhance preparedness for potential disasters.	3.32	Strongly Agree
Residents possess knowledge about available community resources during disasters.	3.37	Strongly Agree
Access to information about local community resources in times of need is a priority for residents.	3.35	Strongly Agree
Residents agree on the importance of owning emergency kits laden with necessities.	3.35	Strongly Agree
Regular updates and maintenance of emergency kits are practices residents agree with.	3.31	Strongly Agree
Residents in Valdefuente, Cabanatuan, actively participate in community disaster drills.	3.22	Agree

Table 1. Continued...

Community disaster drills contribute positively to residents' preparedness for actual emergencies, and they agree with this.	3.34	Strongly Agree
Residents agree on the importance of being familiar with evacuation routes in their area.	3.34	Strongly Agree
Knowledge of local warning systems and emergency contact points during a disaster is deemed important, and residents agree with this.	3.44	Strongly Agree
Residents believe in the actuality and importance of having formulated personal contingency plans before calamities.	3.42	Strongly Agree
GRAND MEAN	3.38	Strongly Agree

Note: 1.00-1.75 "Strongly Disagree"; 1.76-2.50 "Disagree"; 2.51-3.25 "Agree"; and 3.25-4.00 "Strongly Agree"

Table 1 presents the assessment made in observance of the respondent's perspectives of in Valdefuente, Cabanatuan City. It can be gleaned from the responses of one hundred seventy three (173) respondents that the level of disaster preparedness in Valdefuente, Cabanatuan City agrees with a mean of 3.43. The respondents' adherence to preparedness protocols before calamity is 3.36. The respondents' engagement to the activities to enhance the preparedness for potential disasters is 3.31. The respondents' knowledge of availability of community resources is 3.36. The accessibility of information about local community resources to the respondents is 3.34. The respondents' agrees on the importance of owning emergency kits is 3.35. Regular update and maintenance of emergency kit is 3.31. The active participation of the respondents' in community drills is 3.21. The community drills contributes in the respondents emergency preparedness is 3.33. The respondents are agree on the importance of being familiar with evacuation routes in their area is 3.34. The respondents' knowledge about the local warning systems and emergency contact is 3.43. The respondents believe in the actuality and importance of having contingency plan is 3.42 with a mean of 3.34.

The research findings indicate a strong agreement among residents of Valdefuente, Cabanatuan City, regarding their preparedness for disasters. They actively engage in preparedness activities, possess knowledge about available resources, and participate in community drills. The grand mean of residents' preparedness is 3.38, reflecting their strong agreement with disaster preparedness measures. Similarly, in the study of Antonio & Antonio (2017), their study underscores the importance of community preparation and participation in disaster risk reduction and management. It emphasizes the necessity of equipping communities with the knowledge and resources to effectively respond to disasters. Furthermore, according to the study of Casimiro et al. (2018) the effectiveness of integrating disaster training into Family Development Sessions

for economically challenged women. It emphasizes the positive impact of these sessions in changing perceptions towards disaster preparedness and empowering women to contribute to community resilience.

3.3. Challenges encountered during disaster

Table 2. Challenges encountered during disaster		
Indicators	Mean	Remarks
Residents in disaster-prone areas acknowledge the challenges associated with preparing for potential disasters.	3.42	Strongly Agree
The community agrees on the difficulties faced in adhering to preparedness protocols before calamities.	3.31	Strongly Agree
Residents recognize and agree on the obstacles encountered in coordinating and executing a prompt response to disasters.	3.36	Strongly Agree
Residents in post-disaster situations acknowledge the challenges in the recovery and rebuilding efforts.	3.37	Strongly Agree
The community agrees on the difficulties faced during the reconstruction phase after a calamity.	3.36	Strongly Agree
Grand Mean	3.36	Strongly Agree

Note: 1.00-1.75 “Strongly Disagree”; 1.76-2.50 “Disagree”; 2.51-3.25 “Agree”; and 3.25-4.00 “Strongly Agree”

The respondents in disaster-prone area acknowledgement of the challenges associated in preparing for potential disaster is 3.41. The respondents agrees on the difficulties faced in adhering to preparedness protocols before calamities is 3.31. The respondents recognize and agree on the obstacles encountered is 3.35. The respondents in the post-disaster situation acknowledge the challenges to recovery and rebuilding efforts is 3.36. The community agrees on the difficulties faced during the reconstruction phase is 3.35. With a mean of 3.36.

While the study of Vilma et al. (2018) primarily examines the interest of local officials in legislative matters, it indirectly touches upon the broader theme of community engagement and governance. Effective participation of barangay officials in public consultations and their proactive involvement in governance mechanisms are essential for addressing challenges related to disaster preparedness. On the other hand, Gabriel & Mangahas (2017) discusses the experiences of indigenous communities in managing forest resources in response to climate variation. Although the focus is on environmental management, the study highlights the importance of community resilience and adaptive strategies in the face of environmental challenges. Indigenous

communities often possess valuable traditional knowledge and practices that can contribute to disaster preparedness and resilience-building efforts.

The research findings highlight the challenges faced by residents in disaster-prone areas, including difficulties in adhering to preparedness protocols, coordinating prompt responses, and rebuilding efforts post-disaster. These challenges underscore the importance of effective governance and organizational effectiveness in mitigating and managing disasters. Furthermore, Gabriel & Gutierrez (2017), discusses the correlation between governance principles and legislative performance, emphasizing the significance of creating an enabling environment, participatory governance, transparency, and accountability in local governance.

3.4 Possible recommendation after this study

Indicators	Mean	Remarks
Residents in the studied community agree with the proposed recommendations aimed at enhancing and optimizing disaster preparedness protocols.	3.43	Strongly Agree
Residents acknowledge and agree with the proposed recommendations for promoting proficiency in crucial survival skills.	3.43	Strongly Agree

4. Conclusions

In conclusion, the residents of Valde Fuente, Cabanatuan City, demonstrate a commendable level of agreement and positive sentiment regarding disaster preparedness. The findings from Tables 6, 7, and 8 collectively indicate that the community acknowledges the importance of proactive measures in reducing the impact of disasters. With a grand mean of 3.38 in Table 6, residents express general agreement on various preparedness aspects, emphasizing their commitment to readiness. Despite recognizing challenges in Table 7, the respondents display a strong collective understanding (grand mean of 3.36) of the difficulties associated with disaster preparedness, coordination, and recovery efforts. This underscores a community that is not only aware of potential challenges but also willing to confront and overcome them. Moreover, the residents strongly endorse proposed recommendations for enhancing disaster preparedness in Table 8, with a grand mean of 3.43, indicating a positive reception and a proactive stance toward optimizing preparedness efforts within the community. In summary, Valde Fuente, Cabanatuan City, appears to be a well-informed and actively engaged community, expressing a willingness to enhance resilience and preparedness in the face of potential disasters.

References

- Benson, M., et al. (2019). *Understanding disaster preparedness: A multifaceted approach.* Disaster Management Journal, 33(2), 112-119.
- Borrero, S., et al. (2022). *Leveraging community resources in disaster preparedness.* Community Resilience Quarterly, 11(1), 45-53.
- Carson, T., & Yeung, R. (2022). *Exploring the intersections of community resilience and individual preparedness.* Journal of Disaster Studies, 15(4), 234-245.
- Collins, R., & Lewis, D. (2021). *The complexity of resilience: Beyond quantification.* Psychology Today, 28(6), 101-107.
- Cuya-Antonio, O. and Antonio, H. (2017) Effectiveness of the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Flood-Prone Barangays in Cabanatuan City, Philippines. Open Access Library Journal, 4, 1-16. doi: [10.4236/oalib.1103635](https://doi.org/10.4236/oalib.1103635).
- Dey, S., & Misra, R. (2021). *Targeted resilience training: A demographic approach.* Resilience Research Review, 9(3), 205-212.
- Elmi, A., et al. (2019). *Socioeconomic factors in disaster preparedness.* Socioeconomic Studies Journal, 24(5), 455-468.
- Gabriel, A. G., & Gutierrez, M. P. (2017). Praxis in local legislative governance: measure of organizational effectiveness of the component cities in Nueva Ecija, Philippines. *Asia Pacific Journal of Multidisciplinary Research*, 5(2), 12-20.
- Gabriel, A.G. and Mangahas, T.L.S. (2017) Indigenous People's Contribution to the Mitigation of Climate Variation, Their Perception, and Organizing Strategy for Sustainable Community Based Forest Resources Management in Caraballo Mountain, Philippines. Open Journal of Ecology, 7, 85-100. <https://doi.org/10.4236/oje.2017.72007>
- Gonzalez, A., & Ramirez, J. (2021). *Disaster frequency in Valdefuente: A ten-year review.* Natural Hazards Observer, 37(2), 57-63.
- Gupta, A., & Lee, H. (2020). *Cultural influences on resilience: A cross-cultural study.* International Journal of Psychology, 55(4), 569-578.
- Hakim, L., & Malachowski, C. (2021). *Temporal changes in resilience post-disaster.* Disaster Recovery Journal, 17(1), 89-98.
- Harada, T., et al. (2022). *Cultural perspectives on age and disaster preparedness.* Aging and Society, 42(3), 320-335.
- Jhaveri, R., et al. (2022). *Cultural components in resilience assessment.* Cross-Cultural Psychology Bulletin, 46(1), 77-84.
- Jones, B., Brown, D., & Holloway, A. (2020). *Defining community resilience: A new framework.* Community Resilience Review, 8(2), 153-160.
- Kim, Y., & Kang, J. (2020). *The impact of demographics on disaster preparedness.* Disaster Prevention Studies, 18(1), 24-30.
- Lincoln, S., & Arakawa, D. (2020). *Homeownership and disaster preparedness.* Housing and Society, 47(2), 158-167.
- Lindell, M., & Perry, R. (2020). *Education and information preparedness.* Disaster Education Quarterly, 12(4), 211-223.
- Mangahas, T. , Casimiro, R. and Gabriel, A. (2018) Economically Challenged

Women in Disaster Risk Management: Toward a Resilient Filipino Community. *Open Journal of Ecology*, 8, 42-56. doi: [10.4236/oje.2018.81004](https://doi.org/10.4236/oje.2018.81004).

- Martinez, L., & Santiago, F. (2021). *Geographical and climatic vulnerabilities in Valdefuente.* *Geography and Environment*, 19(3), 213-220.
- Newton, J., & Lebowitz, H. (2022). *Rethinking disaster preparedness guidelines.* *Policy and Practice*, 31(1), 89-95.
- Oliveira, M., & Lima, F. (2019). *Gender differences in disaster response behavior.* *Gender Studies Journal*, 26(2), 134-143.
- O'Reilly, M., & Petersen, S. (2022). *Unpacking the Resiliency Quotient: Multiple dimensions of resilience.* *Journal of Psychological Studies*, 34(2), 188-197.
- Rodrigues, C., et al. (2021). *Ethnicity and cultural beliefs in disaster preparedness.* *Cultural Perspectives*, 15(3), 123-132.
- Rodriguez, G., & Mitchell, K. (2020). *Demographic influences on psychological resilience.* *Resilience International*, 10(2), 156-164.
- Redoble, Ramos, Vidal, & Valdes. (2018, November 19). *Factors Affecting Effective Dissemination of Peace and Order Ordinances to Punong Barangays in Maria Aurora, Philippines*. Retrieved April 1, 2024, from <https://doi.org/10.5296/jpag.v8i4.14065>
- Sapir, R., & Siegel, D. (2021). *Interplay of demographics and resilience in disaster preparedness.* *International Journal of Disaster Risk Reduction*, 33, 1014-1022.
- Smith, J., & Blackwood, L. (2019). *Psychological resilience in disaster scenarios.* *Disaster Psychology Review*, 21(3), 176-185.
- Smith, K., & Cooper, J. (2019). *Community-based disaster management: Emphasizing resilience.* *Disaster Management and Response*, 17(1), 22-29.
- Thompson, M., et al. (2022). *Education and resilience: Building psychological strength.* *Educational Psychology Journal*, 38(1), 54-68.
- Thompson, S., & Trice, L. (2020). *Resilience and recovery in disaster survivors.* *Trauma Studies Quarterly*, 25(2), 114-122.
- Torres, L., & De Luna, I. (2020). *Comprehensive assessment of community-driven disaster resilience.* *Community Resilience Studies*, 6(4), 312-327.
- Vincent, A., & Cvetković, V. (2021). *Gender perspectives in disaster readiness.* *Gender and Disaster Journal*, 29(2), 99-108.
- Wang, Q., & Lee, C. (2019). *Quantitative analysis in disaster research.* *Disaster Research Methods*, 22(3), 145-154.
- Washington, M., & Ellis, B. (2022). *Parenting and disaster preparedness.* *Family and Community Studies*, 23(1), 34-40.
- Wilkerson, J., et al. (2021). *Education and home disaster preparedness.* *Home Safety Journal*, 29(3), 201-209.
- Wong, J., & Sheth, A. (2020). *Age and adaptability in disaster scenarios.* *Ageing and Resilience*, 18(4), 167-174.
- Woo, H. (2021). *The role of psychological resilience in disaster preparedness.* *Journal of Mental Health and Resilience*, 5(2), 88-95.
- Zahir, A., et al. (2021). *Occupational factors in disaster readiness.* *Occupational Health and Safety Journal*, 27(1), 55-62.

Zaman, H., & Murshed, R. (2021). *The paradox of wealth in disaster preparedness.* *Wealth and Disaster Studies*, 4(2), 134-140.

Alcayna, T., Bollettino, V., Dy, P., & Vinck, P. (2016). Resilience and Disaster Trends in the Philippines: Opportunities for National and Local Capacity Building. *PLoS currents*, 8,

ecurrents.dis.4a0bc960866e53bd6357ac135d740846.

<https://doi.org/10.1371/currents.dis.4a0bc960866e53bd6357ac135d740846>

Suryaratri et.al (2020)

<https://journal.ijprse.com/index.php/ijprse/article/download/596/566/1045>