

THE KNOWLEDGE LEVEL OF RESIDENTS IN BARANGAY VISTA ALEGRE ON DENGUE AND ITS PREVENTION: A BASIS FOR HEALTH EDUCATION

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ABSTRACT

Dengue has been an endemic case in the Philippines despite the programs made to raise awareness on its prevention. This study was conducted in Barangay Vista Alegre, Bayombong, Nueva Vizcaya. It assessed residents' knowledge of dengue fever, especially regarding its prevention. It was designed to become a basis for future health education programs. With the use of a descriptive-comparative research design, data were gathered from 286 residents. Selection was conducted using simple random sampling. The researcher-made questionnaire measured respondents' knowledge in four areas, namely: transmission, symptoms, prevention, and management of dengue. The results showed that the overall knowledge of the respondents was very high, most especially in the areas of transmission and prevention. On the other hand, knowledge related to dengue management was significantly lower, indicating that there is a gap in understanding what to do once infected. There were no significant differences in knowledge levels in terms of sex, age, employment status, educational attainment, or socioeconomic status, suggesting fair dissemination of information within the community. The findings highlight the importance of strengthening local health education efforts, mainly in correcting misconceptions (e.g., mosquito biting times) and enhancing community-based dengue management practices. The study serves as an important reference for barangay officials, health workers, and future researchers in creating a more targeted intervention to combat dengue and reduce its incidence.

Keywords: Aedes aegypti, fogging, management of dengue, misting, and symptoms of dengue

INTRODUCTION

Dengue fever has been a silent scourge among the community; it is endemic in all regions of the world, and it knows no boundaries. The disease is a mosquito-borne viral disease that continues to be a significant public health concern in the Philippines. Characterized by symptoms such as high fever, severe headaches, muscle and joint pain, and in severe cases, bleeding and organ impairment, dengue is primarily transmitted by the *Aedes aegypti* mosquito. The World Health Organization (WHO) and the Department of Health (DOH) have reported high morbidity and mortality rates in various provinces due to dengue, with Nueva Vizcaya among the areas experiencing persistent outbreaks.

Locally, the province of Nueva Vizcaya also experiences dengue as a problem affecting the community. According to the report of Ebero (2023), there were 1,300 confirmed cases of dengue in the province as of July 2023. Barangay Vista Alegre in Bayombong, Nueva Vizcaya, was identified as one of the barangays with the highest number of dengue cases, reporting 87 cases in 2022 and 60 in early 2023. Contributing factors include environmental issues like improper waste disposal and stagnant water, which are ideal breeding grounds for mosquitoes. Given the recurring outbreaks, the researchers recognized the importance of assessing the community's knowledge regarding dengue, particularly in the areas of transmission, symptoms, prevention, and management.

Adequate knowledge and correct practice for dengue control are essential to stamping out the disease. Low levels of knowledge and awareness could be a factor behind dengue fever outbreaks, causing a lack on the part of the public regarding engagements on preventing dengue,

and thus, extending and accelerating the spread of the virus. In the study of Guad (2021), it was found that the increasing reported cases of dengue in the Philippines substantially influence the people's level of awareness and perception about dengue disease. Though there are already policies regarding the issue of dengue, the prevention methods are still not being applied and implemented accordingly, which results in a very low level of knowledge regarding dengue.

The study included implementation of dengue interventions and control measures that will increase the level of knowledge and awareness of the people to reduce the outbreak as well as the number of dengue cases in Barangay Vista Alegre. Ensuring that community members understand the mechanisms of infection and the key behaviors or activities that need to be addressed. The study offered barangay health workers an empirical information on the knowledge-level of the residents in Barangay Vista Alegre on Dengue. Thus, it will help lead them to employ policies and training sessions that raise the resident's participation to deliver a better outcome of dengue infection, its complications and its management. This may be utilized as an approach in handling people from far flung areas who have difficulty accessing basic education and training about dengue. The health education that was implemented involved environmental sanitation or conducting clean-up activities especially areas that are prone to water pooling, and irregular drainage and water reservoirs to reduce vector larval habitat and maintain cleanliness within the vicinity.

The study was guided by Callista Roy's Adaptation Theory, emphasizing that knowledge and health behavior are essential for community adaptation and health promotion. The aim was to establish a baseline understanding of the residents' knowledge and use the findings to support targeted health education campaigns that can reduce dengue cases and promote sustainable preventive practices.

Statement of the Problem

The study sought to determine the knowledge level of the residents of Barangay Vista Alegre on Dengue and its prevention, the findings which were used as a basis for health education. The study was conducted during the second semester of SY 2024-2025. To address the above-cited problem, answers to the following specific problem were sought:

1. What is the demographic profile of the respondents in terms of:
 - a. Age
 - b. Sex
 - c. Educational Attainment
 - d. Employment Status
 - e. Socioeconomic Status
2. What is the level of knowledge of the respondents on dengue fever in the following components?
 - a. Transmission
 - b. Symptoms
 - c. Prevention
 - d. Management
3. What are the sources of information used by the respondents regarding dengue?
4. Is there a significant difference in the level of knowledge on dengue fever of the respondents when grouped in terms of the demographic profile variables?
5. What are the ways or preventive practices of the respondents in coping with the dengue disease?

METHODOLOGY

The study utilized a quantitative descriptive-comparative approach. The research was conducted in Barangay Vista Alegre, a semi-urban area located in Bayombong, Nueva Vizcaya. The barangay comprises a total of 1,119 households and has a population of approximately 3,931 individuals. To determine the appropriate sample size, the researchers used the Raosoft sample size calculator, which generated a required number of 286 respondents. This calculation was based on a five percent margin of error and a confidence level of ninety-five percent. Eligible participants were aged between eighteen and seventy years old. Individuals with mental or physical disabilities, chronic illnesses, or those who could not read or write were excluded from the study to ensure accurate and meaningful responses.

Simple random sampling was used. One (1) respondent was chosen in every household who satisfied the inclusion criteria. If in one household, there were two or three residents who fit the criteria, the researchers randomly chose one respondent in the said household. On the other hand, if no one fits the criteria in one household, there were no chosen respondents in that household. The same process was used until the target size of 287 was reached.

Data were collected using a researcher-made questionnaire, which was divided into four sections. The items were based on Lozano et al. (2019) and Glevicky (2019). The first section gathered demographic information, including the respondent's sex, age, level of education, employment status, and socioeconomic standing. The second section measured knowledge of dengue through twenty-five yes-or-no items covering four categories: transmission, symptoms, prevention, and management. The third section explored the sources from which respondents obtained information about dengue, while the fourth section asked for their recommendations regarding dengue prevention practices.

To ensure the reliability and validity of the instrument, the questionnaire was reviewed by a panel of experts and then pilot-tested. The pilot test yielded a Cronbach's alpha of 0.71, indicating acceptable internal consistency. Data collection was conducted through house-to-house visits with the coordination of the concerned barangay officials and Barangay Health workers. All ethical considerations were upheld which included obtaining informed consent, maintaining participant anonymity, and safeguarding data confidentiality. The gathered data were analyzed using descriptive statistics, including frequency counts, percentages, means, and standard deviations. To determine whether there were statistically significant differences in knowledge levels based on demographic characteristics, independent samples t-tests and one-way ANOVA were employed.

RESULTS AND DISCUSSION

Section 1. Demographic Profile

Table 1. Demographic Profile of the Respondents in terms of sex, age, employment status, educational attainment, and socio-economic status

Profile	Groups	f (n=286)	%
Sex	Male	147	51.4
	Female	139	48.6
Age	18-29	103	36.0
	30-39	93	32.5
	40-49	40	14.0
	50-59	34	11.9

	60-69	16	5.6
Employment	Student	56	19.6
Status	Employed	112	39.2
	Unemployed	118	41.2
Educational	None	2	0.7
Attainment	Elementary	22	7.7
	High School	138	48.3
	College Graduate	124	43.4

Out of the total 286 respondents, a slightly higher number were male, comprising fifty-one and four-tenths percent (51.4%), while females accounted for forty-eight and six-tenths percent (48.6%). A majority of the participants, or approximately sixty-eight and one-half percent (68.5%), were between the ages of eighteen and thirty-nine. Regarding employment, thirty-nine and two-tenths percent (39.2%) were employed, while forty-one and two-tenths percent (41.2%) were unemployed. In terms of educational attainment, nearly half—or forty-eight and three-tenths percent (48.3%)—were high school graduates, and forty-three and four-tenths percent (43.4%) had completed college. Socioeconomic data revealed that forty-eight and six-tenths percent (48.6%) of the respondents reported their income was just enough to meet their family's daily needs.

Section 2. Level of Knowledge

Table 2. Descriptive Statistics of the level of knowledge of the respondents on dengue fever

			Frequency	Percent
Time when the dengue mosquitoes are likely to feed/bite		Night	132	46.2
		Day	154	53.8
		Total	286	100.0
		Mean	SD	QD
Transmission	Score	5.45	1.08	Very High
	Percent	90.85	17.96	
Symptoms	Score	5.37	0.95	Very High
	Percent	89.57	15.76	
Prevention	Score	6.52	0.78	Very High
	Percent	93.11	11.08	
Management	Score	3.94	0.84	High
	Percent	65.68	14.03	
Overall Knowledge	Overall Score	21.28	1.90	Very High
	Overall Percent	85.13	7.60	

Legend: Very Low: 1 – 20%, Low: 21 – 40%, Average: 41 – 60%, High: 61 – 80%, Very High: 81 – 100%

Table 2 shows the level of knowledge of the residents in Vista Alegre, focusing on components such as the biting time of mosquitoes, transmission, signs and symptoms, prevention, and management. The results revealed generally high to very high levels of knowledge among the respondents. A slight majority (53.8%) correctly identified that mosquitoes bite during the day, while 46.2% incorrectly believed they bite at night. This indicates average awareness of mosquito biting behavior and highlights a need to address misconceptions, as supported by Guad (2021), who emphasized that limited knowledge of Aedes mosquito activity contributes to dengue transmission. This misconception may prevent residents from taking timely preventive actions.

Assessment of dengue-specific knowledge showed high to very high scores across key components. For transmission, the respondents scored a mean of 5.45 (SD = 1.08, 90.21%), reflecting strong awareness of how dengue spreads. Symptom recognition also showed very high knowledge (M = 5.37, SD = 0.95, 89.57%), suggesting respondents can detect early signs of dengue. In prevention, respondents scored the highest (M = 6.52, SD = 0.78, 93.11%), identifying effective control strategies such as using repellents, eliminating standing water, and participating in community-based practices.

These findings indicate that the action programs led by barangay leaders and health workers in Vista Alegre—such as clean-up drives, fogging, public dengue alerts, and awareness campaigns—have been effective. These initiatives, aligned with DOH-standard preventive measures, significantly contributed to the residents' very high awareness and knowledge.

However, knowledge on dengue management was slightly lower (M = 3.94, SD = 0.84, 65.44%), although still at a high level. This suggests less awareness about appropriate management practices, which may affect outcomes if dengue is contracted. This supports the findings of Murray et al. (2023), who noted that while general awareness exists, management practices are often lacking, increasing the risk of complications. Hence, strengthening health education—especially on management—and engaging barangay officials are crucial for better community participation and dengue control.

Overall, the study found that Vista Alegre residents demonstrated a “Very High” level of knowledge on dengue, with an overall mean score of 21.23 out of 25 (SD = 1.84, 84.89%). Most respondents had a strong understanding of dengue transmission, symptoms, prevention, and to a lesser extent, management. These results suggest that public health campaigns have been effective, supporting Guad's (2021) claim that strong knowledge reduces incidence. Continued education and collaboration with local leaders can further strengthen dengue prevention efforts. Murray et al. (2023) also emphasized that local leadership and community health services significantly enhance the success of these programs.

Section 3. Sources of Information

Table 3. Sources of Information

Source of Information	No. of Respondents	Percent (n = 286)
Books	43	15.03
Television/Radio	154	53.85
Social media (Facebook, YouTube, Instagram)	186	65.03
Others:		
• Seminar	12	4.20
• RHU	2	0.70

Regarding the primary sources of information about dengue, the majority of respondents—approximately (65%)—reported social media platforms such as Facebook and YouTube. Television and radio were cited by over half of the participants, specifically (53.85%). A smaller portion, roughly (15%) mentioned books as their source. Other less common sources included community seminars and the rural health unit. Gregorio et al. (2024) found that most of the people in rural areas solely relied on digital platforms such as Facebook and YouTube for dengue-health information aligned with credible sources from the Department of Health (DOH), World Health Organization (WHO), and Rural Health Unit (RHU) staffs. While television and radio were the second preferred sources, this finding contrasts with Guad et al. (2021), which concluded these traditional media as the most used. These findings suggest a growing reliance

on digital media for health-related information, although traditional sources such as radio and television still maintain a strong presence.

Section 4. Significant difference in the level of knowledge on dengue fever in terms of the profile variables

Table 4. Descriptive and inferential statistics of the level of knowledge when grouped according to demographic profile variables

Profile	Groups	f (n=286)	Mean	SD	QD	t-/F-value	p-value
Sex	Male	147	84.27	7.64	Very High	1.481 ^{ns}	0.116
	Female	139	85.64	7.01	Very High		
Age	18-29	103	85.86	7.66	Very High	1.383 ^{ns}	0.240
	30-39	93	84.60	7.93	Very High		
	40-49	40	85.20	6.67	Very High		
	50-59	34	86.00	8.02	Very High		
	60-69	16	81.50	6.00	Very High		
Employment	Student	56	86.07	6.99	Very High	1.682 ^{ns}	0.171
	Employed	112	85.54	6.90	Very High		
	Unemployed	118	83.86	7.88	Very High		
Educational Attainment	Elementary	22	82.91	8.57	Very High	1.256 ^{ns}	0.290
	High School	138	85.28	6.54	Very High		
	College Graduate	124	85.03	7.48	Very High		
Socio-economic Status	Income is very little, not always enough for the family	9	81.33	4.47	Very High	1.072 ^{ns}	0.361
	Income is little, sometimes not enough for our family	82	84.39	7.87	Very High		
	Income is just enough for our family's daily needs; but can hardly save	139	85.27	7.60	Very High		
	Income is very sufficient for our family's daily needs; can save some money	56	85.50	6.22	Very High		

Legend: Very Low: 1 – 20%, Low: 21 – 40%, Average: 41 – 60%, High: 61–80%, Very High: 81–100%

Table 4 shows the significant difference in the level of knowledge of residents in Vista Alegre when grouped according to the profile variables. The analysis revealed no statistically significant differences in knowledge levels when respondents were grouped according to sex, age, employment status, educational attainment, or socioeconomic status. In terms of sex, the female participants had a slightly higher mean knowledge score (85.64%) in relative to males (84. 27%). However, there is no significant difference or influence of sex on the awareness or knowledge level among the respondents. Similarly, the study found that the respondents aged 50

years old had the highest mean knowledge score (86.00%), while the senior group had the lowest (81.50%). The differences in age were not statistically significant which indicates that age does not directly determine the respondents' knowledge about dengue. This concurs with Barua's (2024) results that age has correlation with health knowledge but not strong enough to be statistically significant.

The employment status also had little impact on the knowledge ($p = 0.171$), where students had the highest (86.07%), followed by working or employed individuals (85.54%) and unemployed (83.86%). Correspondingly, the education level was not found to significantly affect ($p = 0.290$) the scores, which varied from 82.91% for elementary school graduates to 85.28% for high school graduates.

Socioeconomic status equally did not have a significant influence on knowledge ($p = 0.361$), with the mean scores varying from 81.33% to 85.50%. The absence of significant differences among demographic variables herein implies that public health education interventions in Barangay Vista Alegre have been equitable and successful across population segments. This observation is consistent with study of Guad (2021), which underscored the importance of community campaigns in enhancing the awareness or knowledge level that transcends educational and social divides. In contrast to the findings of Guad (2021) and Murray et al. (2023), it was observed that lower socioeconomic status and education levels tended to be associated with decreased health knowledge. Thus, the study suggests continued targeted intervention—like house-to-house visits proposed by Murray et al. (2023)—to serve the gaps that remain and again enhance community knowledge regarding dengue prevention.

Section 5. Preventive practices of the respondents in coping with the dengue disease

Table 5. Recommendations from the Residents

Preventive Practices	No. of respondents
1. Regular weekly clean-up drives spearheaded by the barangay leaders and participation of community volunteers	123
2. Health Teaching or school-based health education campaigns	73
3. Fogging/ Misting	90
4. Community-wide Dengue control program	2

Respondents recommended several key practices to prevent the spread of dengue within their community. The most selected strategy was the organization of regular clean-up drives, which was endorsed by 123 respondents. Fogging or misting operations were the second most recommended method, suggested by 90 respondents. Seventy-three participants emphasized the importance of health education campaigns, particularly those conducted in schools. Lastly, a few respondents—specifically two—recommended broader community-wide dengue control programs. These results highlight the community's recognition of the importance of environmental cleanliness and collaborative action. The researchers supported these efforts by developing a health education brochure on dengue, which was distributed to local officials and health workers for use in future campaigns.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This study assessed the level of knowledge among residents of Barangay Vista Alegre, Nueva Vizcaya, regarding dengue fever, specifically its transmission, symptoms, prevention, and management during a critical rise in the number of local dengue cases.

1. Data were gathered from 286 randomly selected residents, with almost an equal representation of both males and females. Most participants are aged 18–39, unemployed, high school graduates, and whose family income is just enough to meet their basic needs.
2. Findings revealed that while residents are knowledgeable of the disease, nearly half of the participants wrongly believe that dengue mosquitoes bite at night, which is a common misconception that can undermine their personal protection efforts. Although awareness of transmission and prevention is high, knowledge about the appropriate management during infection is lower compared to the other areas, which indicates that there is a need for targeted health education.
3. Moreover, the study revealed that the residents of Vista Alegre were able to access information about dengue through social media, followed by television/radio, then through books. Some also stated that they are able to obtain information through seminars and through the rural health units.
4. There are no significant differences in knowledge found across sex, age, employment, education, or even the respondent's socioeconomic status, which suggests that there is an even distribution of dengue-related awareness likely caused by the previous public health campaigns of both national and local agencies. The study highlights the importance of persistent and focused education to correct persistent misconceptions and improve disease management understanding.
5. Strengthening local strategies such as community clean-up drives, school-based campaigns, and collaboration with barangay health workers can further support dengue prevention. In conclusion, this study provides valuable data to inform evidence-based, community-specific interventions that enhance public health efforts in the barangay.

Recommendations

With the findings of the study, the following recommendations are forwarded to specific individuals or groups of individuals:

Barangay Officials. Barangay officials were recommended to determine whether residents could recognize the early signs of dengue and seek medical attention when necessary. Furthermore, they were advised to explore the factors influencing dengue management and assess the effectiveness of various educational interventions in improving residents' knowledge, attitudes, and practices regarding dengue prevention and control.

Residents. The residents are recommended to actively participate in activities aimed at managing dengue. By sharing knowledge about dengue with others and through several platforms, dengue prevention and effective management became more widely understood.

Family. The parents are encouraged to open discussions about dengue within families to enhance awareness, especially among children, and to instill consistent preventive habits. In addition, families should be advised to maintain clean surroundings, regularly check and cover water containers, and cooperate with community activities.

Future Researchers. Future researchers are recommended to conduct further studies to

explore the factors influencing dengue awareness and knowledge among different demographics, as well as a broader population. It is also recommended to investigate the effectiveness of various educational interventions in improving dengue awareness and prevention.

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