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The Implementation of Dengue Prevention and Control Program of the Municipality of Pudtol, Province of Apayao, Philippines

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ABSTRACT

Dengue fever is a serious illness that affects everyone, particularly in regions lacking effective surveillance systems to monitor and respond to outbreaks. The data were analyzed using descriptive-correlational analysis. It determines the implementation of the dengue prevention and control program in Pudtol, Apayao, from January to December 2023. It also aimed to assess the significant relationship between the extent of implementation and the socio-demographic profiles of the implementers (Municipal Health Officers (MHOs)/Local Government Unit (LGU) personnel) and resident respondents. The socio-demographic profile of the respondents indicated that a large percentage were 42–47 years old, female, married, college graduates, and unskilled, earning below PHP 10,000. Significantly, the majority of respondents did not attend any related training or seminars. The findings concluded that the extent of implementation of the dengue prevention and control program, including personal hygiene, was rated "very much implemented". Surveillance, case management, and diagnosis of signs and symptoms, integrated vector management (IVM), outbreak response, health promotion, and advocacy were rated as "much implemented" only. The study found a significant relationship between program implementation and occupation, monthly income, educational attainment, and the number of relevant training programs or seminars attended. Based on these findings, the study recommends an action plan to reduce or eliminate dengue cases in Pudtol, Apayao. It promotes strict observance of hygiene practices and regular attendance at seminars and training sessions. The research provides significant data for the Department of Health, Municipal Health Office personnel, residents, and academe to enhance existing programs and policies on dengue prevention and control.

Keywords*: Dengue Fever, Monitoring and Surveillance, Viral Disease, Deadly Disease, Implementation of Government Programs*

INTRODUCTION

Dengue is a mosquito-borne viral infection transmitted by *Aedes* mosquitoes, causing mild to severe flu-like symptoms and, in severe cases, life-threatening complications. Despite the existence of national dengue control strategies, limited empirical studies have examined the extent to which these programs are implemented at the municipal level, particularly from the perspectives of both implementers and community residents.

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Worldwide, dengue affects nearly half of the world's population, with an estimated 100–400 million infections each year (WHO, 2023). In the Philippines, over 1.1 million cases and more than 3,000 mortalities were reported between 2019 and 2023. In Pudtol, Apayao, dengue cases have increased and persisted: from 154 in 2019, decreasing to 9 in 2020, and increasing again to 456 in 2022, emphasizing ongoing transmission. This situation calls for a reinforced evaluation of local dengue control programs in line with the World Health Organization's Global Strategy for Dengue Prevention and Control (2021–2030), and this study is in relation to the United Nations Sustainable Development Goal (SDG) 3, which aims to ensure healthy lives and well-being for all ages.

Environmental conditions strongly impact dengue transmission. Collins & Kumral (2020) link urban planning, waste management, and water storage to mosquito breeding habitats. Participating in environmental management to prevent disease effectively reduces vector habitats and disease risk. Information on medicinal plants and their value to patients and their families can also help prevent (Banez, 2020). The One Health approach, combining human, animal, and environmental health, offers a holistic solution (Instar et al., 2020). The WHO (2019) further states that removing mosquito breeding areas and keeping clean water storage remain the most effective preventive measures.

On the other hand, personal hygiene is a key preventive measure. Agua (2021) recommends daily bathing, wearing clean clothes, and using repellents during mosquito season, practices also recognized by WHO (2023). Early detection and diagnosis are both critical for decreasing disease and death. The WHO (2022) emphasizes the importance of surveillance systems for clinical and environmental monitoring, while Golineli et al. (2023) support the use of digital surveillance tools to advance outbreak response. Scott et al. (2021) and Sulisyawati (2020) confirm that early clinical management and accurate severity assessment are vital for improved outcomes.

Furthermore, Integrated Vector Management (IVM) gives light as the backbone of global dengue control strategies. WHO (2020) defines IVM as the integration of intersectoral interventions for efficient, sustainable vector control. The Global Vector Control Response 2017–2030 emphasizes capacity-building, surveillance, and infrastructure (Lindsay et al., 2021). Since no general dengue vaccine exists, cost-effective and sustainable vector control is still the best preventive measure (WHO, 2020). In the Philippines, the Department of Health (DOH) contracts with local governments to distribute insecticides and larvicides in response to outbreaks (Vergara, 2021). Programs like the "4 o'clock Habit to Deng-Get Out" and "5-S Against Dengue" campaigns encourage public participation to reduce mosquito habitats (Franz Henryk, 2021; Srisawat et al., 2022).

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Socio-demographic factors also affect dengue awareness and prevention. It was found that prevention awareness is highest among those over 50 years old, while younger adults demonstrate stronger knowledge about dengue mortality. Yuill (2023) and WebMD (2023) report that children and immunocompromised individuals are more vulnerable to severe dengue. Education plays a crucial role—Selvarajoo (2020) found that higher levels of education and income improve preventive practices and environmental sanitation.

Effective vector control relies on chemical, biological, and technological measures. WHO (2023) recommends pyrethroids, organophosphates, and biological larvicides such as *Bacillus thuringiensis var. israelensis* for breeding site treatment. Insecticide-treated nets, traps, and surveillance tools, such as GIS software, enhance vector monitoring and data-driven interventions (CDC, 2023). Vaccines, diagnostic kits, and educational materials added support community-level control (WHO & CDC, 2023).

Given these conditions, this study aims to measure the implementation of the dengue prevention and control program in Pudtol, Apayao, specifically examining the level of community participation, the effectiveness of preventive strategies, and challenges faced in program delivery.

The findings will provide essential reference data for the Department of Health (DOH) and the Municipal Health Office (MHO) to evaluate and improve local dengue programs. It will detect effective control measures such as insecticide use, biological interventions, and environmental management while strengthening health education and community engagement. The study will also enrich understanding of community knowledge, attitudes, and practices toward dengue prevention, promoting behavior change and resilience. Ultimately, it supports the realization of SDG 3 by contributing to sustainable, evidence-based interventions that reduce dengue morbidity and mortality in Pudtol, Apayao, and similar endemic areas.

Objectives of the Study

This study aimed to determine the implementation of the Dengue Prevention and Control Program in Pudtol, Apayao, covering the period from January to December 2023. Specifically, it sought to determine: 1) the socio-demographic profile of the implementer-respondents in terms of age, sex, civil status, educational attainment, occupation, position or designation, place of residence, monthly family income, related training and seminars attended, and materials or equipment used in program implementation. 2) To assess the extent of implementation of the dengue prevention and control program along the areas of personal hygiene, surveillance, case management and diagnosis, integrated vector management (IVM), outbreak response, and health promotion and advocacy.3) To

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determine whether there is a significant relationship between the extent of dengue prevention and control implementation and the socio-demographic profile of the respondents. 4)To formulate a proposed action plan based on the findings of the study.

METHODOLOGY

This section presents the research design, population, data collection instrument, data collection procedures, ethical considerations, and statistical treatment of the data.

Research Design. This study employed the descriptive-correlational research method (Cadorna & Ramos-Mortel, 2024). It is descriptive because it describes the preventive and control program for dengue fever among the respondents and their profiles. On the other hand, it is a correlational analysis method because it describes the relationship between the dependent and independent variables. The data for this study were gathered through a questionnaire checklist developed by the researcher and content-validated by a pool of experts. The data were analyzed using frequency, percentage, mean, and simple linear correlation analysis.

Population. The respondents in this research study were the MHO/LGU personnel handling the program and the residents of the municipality of Pudtol, which had the highest number of dengue cases from 2022 to 2023. They are identified through the Rural Health Unit's records, with support from the Municipal Health Officer. The sample sizes for resident respondents and implementer respondents were arbitrarily set to 125 and 51, respectively, and both were selected through purposive sampling. Total enumeration was employed for the implementer-respondents. Although the sample included respondents from all subgroups, representativeness may be limited by nonresponse from some population segments.

Data Gathering Instrument. A questionnaire checklist adapted from the DOH Manual was revised to align with the study, and content validated by a pool of experts was used to gather data. A pilot test was conducted with 30 residents of Pudtol, Apayao. Cronbach's alpha was used to determine the reliability of measurement scales and tests, providing researchers with salient information about the consistency of their instruments. The results for Part A were 0.86, and for Part B, 0.95, indicating that the item questionnaire was reliable, with good internal consistency and reliability for the set of items or measures being evaluated. It comprises two parts. Part I gathers the necessary information on the respondents' socio-demographic profiles, which include age, sex, civil status, educational attainment, occupation, position or designation, place of residence, monthly family income, related training and seminars, and materials and equipment used. Part II provided information on the extent of implementation of dengue prevention and

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control. A five-point rating scale was used to self-rate the extent of dengue prevention. The norm for interpretation is as follows:

Legend:

Mean Ranges	*Item Descriptive Rating*	*Overall Descriptive Rating*
4.21 – 5.00	*Always (A)*	*Very Much Implemented (VMI)*
3.41 – 4.20	*Often (O)*	*Much Implemented (MuI)*
2.61 – 3.40	*Sometimes (So)*	*Moderately Implemented (MoI)*
1.81 – 2.60	*Seldom (Se)*	*Slightly Implemented (SI)*
1.00 – 1.80	*Never (N)*	*Not Implemented (NI)*

Data Gathering Procedure. Data collection begins with securing ERC approval from the University Research Committee. The researcher presented a letter requesting approval from the provincial health officers and the Rural Health Unit, with the assistance of the Municipal Health Officers of Pudtol. The researcher also sought permission from the barangay captains in the selected barangay in Pudtol to gather data from residents who had suffered from dengue. The questionnaire was distributed to respondents to encourage honest and responsible responses.

Statistical Treatment of Data. The frequency and percentage were used to describe the respondents' profile, providing a clear overview of their demographic characteristics. The mean was used to assess the extent of implementation and control of the dengue fever program among the respondents, thereby assessing how effectively the program was carried out. Furthermore, a simple linear correlation analysis was used to examine the relationship between the extent of implementation and control of the dengue control program and respondents' profiles, while also identifying possible associations between demographic factors and program performance.

RESULTS AND DISCUSSION

1. Socio-demographic profile of the Implementer-respondents

A large percentage of the respondents are aged 42-47 (11, or 21.57%). The majority of the respondents (40, or 78.43%) are female, and 42, or 82.35%, are married. A great number of the respondents (23, or 45.10%) are college graduates. A great number (23, or 45.10%) are college graduates. The majority of the respondents (36, or 70.59%) are unskilled. Most of the respondents (44, or 86.27%) reside near the farm, and 38 (or 74.51%) earn below PHP. 10,000. Most respondents (27 or 52.94%) have 4-5 family members. A great number of respondents (24, or 47.06%) did not attend any related training or seminars, and Most respondents (36, or 70.59%) used repellent as their material or equipment in dengue prevention control.

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2. Extent of Implementation of Dengue Prevention and Control Program in Terms of Personal Hygiene.

Table 1 presents the extent of Implementation of the Dengue Prevention and Control Program in Terms of Personal Hygiene.

Table 1

Item Mean Ratings Showing the Extent of Implementation of Dengue Prevention and Control Program in Terms of Personal Hygiene

Item	Residents		Implementer		As a Whole	
	M	DR	M	DR	M	DR
1. The implementer advised proper disposal of solid waste and eliminating breeding sites for mosquitoes.	4.25	A	4.78	A	4.40	A
2. The implementer and residents regularly check clean water storage containers to prevent mosquito breeding.	4.36	A	4.82	A	4.49	A
3. The implementer ensures adequate drainage to prevent stagnant water accumulation.	4.38	A	4.76	A	4.49	A
4. The implementer advises residents to apply insect repellents on exposed skin to reduce mosquito bites.	4.39	A	4.80	A	4.51	A
5. The implementer advised the residents to take a bath every day to prevent a foul odor that will attract mosquitoes.	4.46	A	4.84	A	4.57	A
6. The implementer advised us to wash hands regularly with soap and water, especially after outdoor activities or handling items that may have come into contact with mosquitoes.	4.46	A	4.80	A	4.56	A
Overall	**4.38**	**VMI**	**4.80**	**VMI**	**4.50**	**VMI**

Overall, the respondents “very much implemented” the dengue prevention and control program on personal hygiene, with an overall mean of 4.50. They “always” advised residents to bathe daily (M = 4.56), wash hands regularly (M = 4.56), and properly dispose of waste to prevent mosquito breeding (M = 4.40). These practices reflect solid hygiene awareness, though improper waste disposal is still a challenge. The findings are consistent with Hussain et al. (2023), who reported that poor hygiene practices are associated with low community awareness, emphasizing that higher awareness leads to better hygiene and more effective dengue

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prevention. In the study by Devera & Nero (2019), attending seminars/training related to infection control and the use of personal protective equipment are significant aspects in disease control and prevention.

The Extent of Implementation of the Dengue Prevention and Control Program in Terms of Surveillance of Dengue Transmission

Table 2 presents the extent of implementation of dengue prevention and control programs in terms of dengue transmission surveillance.

Table 2
Item Mean Ratings showing the Extent of Implementation of Dengue Prevention and Control Program in terms of Surveillance of Dengue Transmission

	Item	Residents		Implementer		As a Whole	
		M	DR	M	DR	M	DR
1.	The implementer's response is rapid and appropriate for any report of dengue cases.	4.10	O	4.51	A	4.22	A
2.	The implementer searches for and destroys mosquito breeding places.	4.15	O	4.51	A	4.26	A
3.	The implementer monitors environmental and social risk factors for dengue outbreaks.	4.09	O	4.49	A	4.20	O
4.	The implementer conducts regular surveys on the case of dengue.	4.06	O	4.49	A	4.19	O
5.	The implementer inspects installed mosquito traps and gathering of trapped mosquitoes every morning in a daily basis (07:00–11:00 AM)	2.93	So	3.31	So	3.04	So
	Overall	**3.87**	**Mul**	**4.26**	**VMI**	**3.98**	**Mul**

The overall mean rating of 3.98 shows that the respondents “much implemented” dengue prevention and control actions related to monitoring transmission. They “always” reported dengue cases promptly (M = 4.22) and destroyed mosquito breeding sites (M = 4.26), showing strong preventive action. However, they only “sometimes” checked mosquito traps and validated repellents (M = 3.04), suggesting areas for enhancement. These results backed Tsheten et al. (2021), who noted gaps in integrating entomological and disease surveillance

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systems, often causing delays in dengue response. Epidemic sequences were also linked to shifts in dengue serotypes, resulting in more severe disease outbreaks.

The Extent of Implementation of the Dengue Prevention and Control Program in Terms of Case Management and Diagnosis of Signs and Symptoms

Table 3 presents the extent of implementation of dengue prevention and control programs in terms of case management and diagnosis of signs and symptoms.

Table 3

Item Mean Ratings showing the Extent of Implementation of Dengue Prevention and Control Program in Terms of Case Management and Diagnosis of Signs and Symptoms

	Item	Residents		Implementer		As a Whole	
		M	DR	M	DR	M	DR
1.	The implementer determines the presence of the sign and symptoms of dengue that may include fever, headache, rash and body aches.	3.94	O	4.29	A	4.05	O
2.	The implementer advises treatment options for patients with dengue in the different phases, including cases with complications.	3.98	O	4.33	A	4.09	O
3.	The implementer determines the likelihood that the current or recent illness is due to an infection with dengue virus.	3.85	O	4.29	A	3.98	O
4.	The implementer recommends that serology is the method of choice for diagnosis.	3.86	O	4.27	A	3.98	O
5.	The implementer educates that the initial 1-7 days after symptoms onset are referred to as the acute phase of dengue.	3.90	O	4.29	A	4.01	O
6.	The implementer educates that the patient with rashes (Petechiae) and fever.	3.69	O	4.24	A	3.85	O
	Overall	**3.87**	**MuI**	**4.29**	**VMI**	**3.99**	**MuI**

With an overall mean of 3.99, the respondents reported having “much implemented” the dengue prevention and control program in terms of case

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management and the identification of signs and symptoms. They "always" identified common symptoms such as fever, headache, rash, and body aches (M = 4.05) and refined that rashes with fever could indicate dengue (M = 3.85). Implementers also advised on appropriate treatment options for different disease phases to reduce morbidity and mortality (M = 4.09). However, education on recognizing dengue symptoms needs firming up. Enhancing information campaigns through seminars and flyers could improve community awareness. This finding supports Htun et al. (2021), who identified key dengue symptoms and noted vomiting as a sign associated with worse dengue cases.

The Extent of Implementation of Dengue Prevention and Control Program in Terms of Integrated Vector Management (IVM)

Table 4 shows the extent of implementation of the dengue prevention and control program in terms of integrated vector management (IVM).

Table 4

Item Mean Ratings showing the Extent of Implementation of Dengue Prevention and Control Program in Terms of Integrated Vector Management (IVM)

Item	Residents		Implementer		As a Whole	
	M	DR	M	DR	M	DR
1. The implementer may have an insecticide-treated screen to trap mosquitoes control strategy in the community.	3.26	So	3.88	O	3.44	O
2. The implementer conducts training on vector management, training on basic entomology for sanitary inspectors, and training on integrated vector management (IVM) for health workers.	3.81	O	4.14	O	3.90	O
3. The implementer conducts Seminar/ Health Education in every	3.86	O	4.16	O	3.95	O

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	Barangay regarding vector management.						
4.	The implementer conducts operation tab to prevent outbreaks of the disease.	4.14	O	4.31	A	4.19	O
5.	The implementer educates the residents for effective vector control measures by letting them participate during the conduct of searching and destroying breeding places.	3.82	O	4.27	A	3.95	O
6.	The implementer educates the residents that dengue can be treated if signs and symptoms are detected early.	3.90	O	4.25	A	4.00	O
7.	The implementer educates that once you get dengue, relapse may occur.	3.81	O	4.25	A	3.94	O
	Overall	**3.80**	**MuI**	**4.18**	**MuI**	**3.91**	**MuI**

The Extent of Implementation of the Dengue Prevention and Control Program in Terms of Outbreak Response

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Table 5 presents the extent of implementation of dengue prevention and control programs in terms of outbreak response.

Table 5

Item Mean Ratings showing the Extent of Implementation of Dengue Prevention and Control Program in Terms of Outbreak Response

	Item	Residents		Implementer		As a Whole	
		M	**DR**	**M**	**DR**	**M**	**DR**
1.	The implementer has continuous DOH augmentation of insecticides such as adulticides and larvicides to LGUs for outbreak response.	3.75	O	4.06	O	3.84	O
2.	The implementer educates the residents to use mosquito nets, insect repellants, wearing of pajamas, socks, long sleeves and avoiding dark colored clothes to protect them from insect bites.	4.10	O	4.33	A	4.16	O
3.	The implementer educates the residents to do fogging techniques to eliminate mosquitos to prevent the residents from dengue.	3.86	O	3.90	O	3.88	O
	Overall	**3.90**	**MuI**	**4.10**	**MuI**	**3.96**	**MuI**

Legend:

Mean Ranges	***Item Descriptive Rating***	***Overall Descriptive Rating***
4.21 – 5.00	*Always (A)*	*Very Much Implemented (VMI)*
3.41 – 4.20	*Often (O)*	*Much Implemented (MuI)*
2.61 – 3.40	*Sometimes (So)*	*Moderately Implemented (MoI)*
1.81 – 2.60	*Seldom (Se)*	*Slightly Implemented (SI)*
1.00 – 1.80	*Never (N)*	*Not Implemented (NI)*

Overall, the respondents have “much implemented” the dengue prevention and control program in terms of outbreak response, with an overall mean rating of 3.96. When taken individually, the respondents “always” educate residents to use mosquito nets, insect repellents, pajamas, socks, long sleeves, and to avoid dark-colored clothes to protect them from insect bites. In doing so, this may minimize the transmission of dengue viruses (M = 4.09). The implementers have “often”

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continued DOH augmentation of insecticides and larvicides to local government units for outbreak response (M = 3.85). This implies that the implementers reflect a worthy level of commitment and effectiveness in implementing outbreak response measures as part of the dengue prevention and control program. This achievement can contribute significantly to controlling and finally eliminating dengue in the community. This result supports the study by Johnston et al. (2020), who found that, to prevent or mitigate the spread of future arboviral introductions and outbreaks, the public health response should focus on behavioral and cultural attitudes, emphasizing personal mosquito protection and community-level mosquito control. They added that outbreak responses can also be enhanced by using advanced GIS techniques, such as hot-spot analysis, to provide situational awareness and support leadership response efforts.

The Extent of Implementation of the Dengue Prevention and Control Program in Terms of Health Promotion and Advocacy Prevention

Table 6 presents the extent of implementation of dengue prevention and control programs in terms of health promotion and advocacy prevention.

Table 6
Item Mean Ratings showing the Extent of Implementation of Dengue Prevention and Control Program in Terms of Health Promotion and Advocacy Prevention

	Item	Residents		Implementer		As a Whole	
		M	**DR**	**M**	**DR**	**M**	**DR**
1.	The implementer educates residents in healthy lifestyle habits to promote well-being for all ages.	4.10	O	4.29	A	4.15	O
2.	The implementer educates the resident's roofs and gutters are cleaned regularly every month.	4.00	O	4.29	A	4.09	O
3.	The implementer educates that water containers used for storage should be covered properly to prevent breeding of mosquitos.	4.11	O	4.33	A	4.18	O
4.	The implementer educates the residents that the vases filled with water be changed daily.	4.12	O	4.31	A	4.18	O
	Overall	**4.08**	**MuI**	**4.31**	**VMI**	**4.15**	**MuI**

Overall, the respondents "much implemented" the dengue prevention and control program in terms of health promotion and advocacy, with an overall mean of 4.15. They "always" educated residents to cover water containers and change vase water daily (M = 4.18) and to clean roofs and gutters monthly (M = 4.09). These efforts validate a strong commitment to increasing awareness, reducing dengue

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morbidity, and promoting community participation. While implementation was effective, further improvement is still needed. This aligns with Tarigan et al. (2020), who found that promoting health awareness and motivation among at-risk populations significantly enhances dengue prevention and control efforts.

Summary of the Extent of Implementation of the Dengue Prevention and Control Program

Table 7 summarizes the extent of implementation of dengue prevention and control programs. The table displays the extent of implementation of the dengue prevention and control program as evaluated by both residents and implementers. Overall, residents rated the program as "much implemented" (M = 3.98), while implementers evaluated it as "very much implemented" (M = 4.34), yielding an overall mean of 4.09 ("much implemented"). Among the indicators, personal hygiene established the highest overall rating (M = 4.50, "very much implemented"), showing strong compliance with preventive hygiene practices. The lowest mean was observed in integrated vector management (M = 3.91, "much implemented"), signifying room for improvement in mosquito control measures. Overall, results indicate effective implementation with areas that still require enhancement.

Table 7

Summary of the Extent of Implementation of Dengue Prevention and Control Program

Indicators	Residents		Implementer		As a Whole	
	M	DR	M	DR	M	DR
A. Personal Hygiene	4.38	VMI	4.80	VMI	4.50	VMI
B. Surveillance of Dengue Transmission	3.87	MuI	4.26	VMI	3.98	MuI
C. Case management and diagnosis of sign and symptoms	3.87	MuI	4.29	VMI	3.99	MuI
D. Integrated vector management (IVM)	3.80	MuI	4.18	MuI	3.91	MuI
E. Outbreak Response	3.90	MuI	4.10	MuI	3.96	MuI
F. Health promotion and advocacy prevention	4.08	MuI	4.31	VMI	4.15	MuI
Overall	**3.98**	**MuI**	**4.34**	**VMI**	**4.09**	**MuI**

Legend:

Mean Ranges	*Item Descriptive Rating*	*Overall Descriptive Rating*
4.21 – 5.00	*Always (A)*	*Very Much Implemented (VMI)*
3.41 – 4.20	*Often (O)*	*Much Implemented (MuI)*
2.61 – 3.40	*Sometimes (So)*	*Moderately Implemented (MoI)*
1.81 – 2.60	*Seldom (Se)*	*Slightly Implemented (SI)*
1.00 – 1.80	*Never (N)*	*Not Implemented (NI)*

Overall, the Dengue Prevention and Control Program is well implemented (M=4.09), with personal hygiene being highly implemented—implementers rate activities

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higher than residents, indicating perception gaps. Strengthening surveillance and case management is needed to increase community engagement and consistency (DOH, 2023). This implies that the targeted interventions should address weaker components, such as IVM and outbreak response.

Problem 3. Determine if there is a significant relationship between the extent of dengue prevention and control implementation and the socio-demographic profile of the respondents.

Table 8 presents the Correlation Coefficients showing the Relationship between the Socio-demographic Profile of the Implementers and their Extent of Implementation of Dengue Prevention and Control

Table 8
Correlation Coefficients showing the Relationship between the Socio-demographic Profile of the Implementers and their Extent of Implementation of Dengue Prevention and Control

Socio-demographic Profile	Extent of implementation of dengue prevention and control program						
	A	B	C	D	E	F	Overall
Age	0.023	0.082	0.105	0.110	0.171	0.114	0.023
Sex	0.155	-0.025	0.072	0.032	0.033	0.028	0.155
Civil Status	0.169	0.225	0.137	-0.018	0.088	0.142	0.169
Educational Attainment	0.143	0.123	-0.043	-0.174	0.001	0.078	0.143
Occupation	.284*	.324*	0.197	0.137	.369*	.295*	.284*
Place of Residence	0.180	0.145	-0.062	-0.156	0.031	0.078	0.180
Monthly Income	.284*	.291*	0.187	0.106	.374*	.276*	.284*
Number of Family Member	-.381*	-.311*	-.291*	-0.203	-0.230	-.363*	-.381*
Number of Relevant Training/Seminars attended	0.091	-0.094	-0.008	0.040	-0.118	-0.019	0.091
Materials/ Equipment used in Dengue Prevention and control							
Mosquito Net	-0.034	-0.155	-0.221	-0.199	-0.121	-0.178	-0.201
Katol	-0.036	-0.175	-0.219	-0.073	-0.017	-0.062	-0.140
Mosquito Traps	-0.269	0.030	0.085	0.062	0.053	-0.076	0.002
Insecticide/Spray	-0.269	0.030	0.085	0.062	0.053	-0.076	0.002
Repellant	0.222	0.130	0.157	0.099	-0.122	0.151	

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Socio-demographic Profile	Extent of implementation of dengue prevention and control program						
	A	B	C	D	E	F	Overall
					0.013		

Legend: *. Correlation is significant

A. *Personal Hygiene*
B. *Surveillance of Dengue Transmission*
C. *Case management and diagnosis of sign and symptoms*
D. *Integrated vector management (IVM)*
E. *Outbreak Response*
F. *Health promotion and advocacy prevention*

Relationship between the Socio-demographic Profile of the Implementer-Respondents and their Extent of Implementation of the Dengue Prevention and Control program

Table 8 shows that there is a relationship between the Socio-demographic Profile of the Implementers and their Extent of Implementation of Dengue Prevention and Control.

On Socio-Demographic Profile of Implementers

The study found a significant positive correlation between respondents' occupation and income and the implementation of dengue prevention and control (r = .284), indicating that those employed in community health or barangay work are better informed about dengue measures. This may be owing to their direct involvement and concern for their surroundings. Training attendance did not show a significant relationship. This may be due to a lack of organizational support, experience, motivation, or workload. Conversely, larger family size exhibited an inverse relationship with program implementation, as a significant shift toward basic needs may be due to economic and time constraints. Similar to Aslam et al. (2021), who detected good general knowledge among employed respondents, this finding underscores the need for continuous awareness campaigns through media and community education to sustain dengue prevention efforts.

4. Proposed Action Plan

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PROJECTED STRATEGIES TO ERADICATE THE CASES OF DENGUE FEVER IN PUDTOL, APAYAO

General Objectives:	Action Needed	Resources	Department/ Individual Involved	Time Frame	Success Indicator
Specific Objective					
1. Improved Feedbacking to Municipal Health Officer	Weekly/monthly report of dengue cases	Human Resources	Municipal Health Officer, Dengue Coordinator, Philippine Integrated Disease Surveillance and Reform, Focal Person	Weekly	Decrease no. of dengue patients
2.Promotion of the 4 o'clock habit to all 22 Barangay and establishments	All BHW's and Barangay Officials should participate to "Taob-yugyog" activity every Friday at 4 o'clock	Human Resources	All Brgy. Officials, Midwives, BHW, Dengue Coordination	Every Friday	Conducted 4 o'clock habit every Friday
3.Secure the support of Local Chief Executive in intensifying awareness program	Information meeting with the Local Chief Executive	Human Resources	Municipal Mayor, MHO, Dengue Coordinator	Once a year	Budget allocation for intensifying dengue awareness program
4.Health information updates to all 22 barangay and establishments	Attend to barangay assembly and share updates about dengue fever for disease	Human Resources and IEC materials about dengue fever	All Brgy. Official, BHW's, Midwives, Dengue Coordinator	Quarterly	Floated/distributed IEC materials and Awareness of the Community about dengue fever

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General Objectives:	Action Needed	Resources	Department/ Individual Involved	Time Frame	Success Indicator
5.Observant of the 5S (secure and destroy, self-protection, seek early medical consultation, support fogging, and sustain hydration)	IEC materials should be distributed to all barangays	Human Resource, Monitoring system	Dengue Coordinator, BHW's, Midwives, Brgy. Officials	Monthly	Awareness of the Community about dengue fever
6.Supervise and monitor dengue prevention lectures-securing documentation and attendance	Attend symposium regarding dengue fever disease	Human Resource, Training on dengue fever disease	Dengue Coordinator	Monthly	Supervised and monitored barangays
7. Ensure availability of medical supplies for initial supportive treatments in RHU's and infirmary hospital	Monthly inventory of medical supplies	Human Resource, medical supplies	Municipal Health Officer, Chief of Hospital, Dengue Coordinator	Monthly	Availability of medicine supplies to RHUs and Infirmary Hospital

The projected plans to decrease dengue cases in Pudtol, Apayao emphasize strengthening coordination, awareness, and preventive actions against all barangays. Key initiatives include regular reporting of feedback to the Municipal Health Officer, encouraging the 4 o'clock habit every Friday, and securing support from the Local Chief Executive for awareness programs. Health evidence dissemination and community education on the 5S strategy are prioritized to enhance prevention and early detection. Continuous supervision of dengue lectures and ensuring the availability of medical supplies further reinforces preparedness. These cooperative efforts aim to foster community participation and ensure a dengue-free environment in Pudtol.

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CONCLUSION

Based on the findings, the study concludes that most respondents aged 42–47 are female, married, and college graduates, with limited training. The majoseminar participation unskilled workers earning below ten thousand pesos, living near farms, and mainly using repellents for dengue prevention. The implementation of dengue prevention and control programs is high, particularly in personal hygiene, while other components such as surveillance, case management, and advocacy are well-practiced. Significant relationships were found between implementation and socio-demographic factors, including occupation, income, education, and training. Implementers and residents unite to implement the proposed action plan. Highlight the lower indicator results for implementation. A proposed action plan is recommended to reduce or eradicate dengue cases in Pudtol, Apayao.

RECOMMENDATIONS

Based on the conclusion drawn, it is therefore recommended that: To the Department of Health, the result of this study may serve as baseline data in crafting programs to guide the improvement of programs and policies on the prevention and control of dengue fever. To the Municipal Health Office (MHO) personnel, primarily those responsible for the implementation of the dengue prevention and control program, data may serve as a basis for the need to attend relevant seminars and training to update themselves on the trends and issues and strict compliance with activities like Ta-ob Yugyog, maintenance of cleanliness in households' surroundings, and having insecticide-treated screens to trap mosquitoes in the community; The residents are encouraged to improve their hygiene and household practices, proper waste disposal to avoid breeding place of mosquitoes by attending seminars on health, visiting their rural health unit, and applying the things they learned from these classes and seminars, which will help them understand the epidemiology, transmission dynamics, and genetic variability of the dengue virus. For the academic community, imparting health education may be part of their extension activities in the community, especially for implementers of preventive and control practices, through outreach programs that faculty and students can conduct. Future researchers are encouraged to conduct a qualitative study to develop an in-depth understanding of the experiences of individuals affected by dengue fever.

ETHICAL STATEMENT

The study was reviewed and approved by the Ethics Review Committee of the University of Northern Philippines, with approval number 24-113. Accordingly, the researchers prioritized voluntary participation when recruiting research participants. Hence, each participant and their guardian have the right to decide

whether to participate or decline the researchers' invitation. Additionally, they are informed of their right to withdraw from the study at any time if they feel uncomfortable after participating in the researchers' data collection process. The researchers guarantee that each respondent's rights to anonymity and privacy are protected at all costs. All data collected from participants are treated with utmost confidentiality and used solely for the study, as agreed upon by both respondents and researchers.

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