



# UNPACKING DENGUE VIRUS KNOWLEDGE: A LOOK AT PRE-SERVICE AND IN-SERVICE TEACHERS' UNDERSTANDING AND MISCONCEPTIONS

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## ABSTRACT

*This study aimed to evaluate the understanding and prevalent misconceptions regarding the Dengue virus among pre-service teachers and educators. Employing a descriptive research methodology, the study engaged 270 pre-service teacher students and 41 educators from the College of Education at Nueva Ecija University (NEUST) during the first semester of the 2018-2019 academic year.*

*The results revealed that educators from the College of Education displayed limited awareness of the Dengue virus. Furthermore, the level of awareness regarding common fallacies associated with Dengue among College of Education educators indicated an extensive understanding of these misconceptions. Conversely, pre-service teachers demonstrated only moderate awareness of Dengue and its associated misconceptions.*

*Based on these findings, the researcher recommends enhancing the awareness levels of both educators and pre-service teachers through information dissemination initiatives such as seminars and forums focusing on Dengue virus. Additionally, integrating Dengue awareness into their educational curriculum is advised.*

**KEYWORDS:** *Dengue Virus, dissemination, misconception*

## I. INTRODUCTION

Dengue fever is one of the most common viral diseases that today's generation faces. It is a disease that can take someone's life in a matter of minutes. It is a tropical disease transmitted to humans by mosquitoes that causes a sudden fever or even acute pain in the joints. According to Center for Disease Control and Prevention, severe dengue is a medical emergency and requires immediate medical attention or hospitalization. In the Philippines, most dengue victims are children aged 1 to 10 years old because of their lack of awareness of their surroundings (Azou et al 2014). Thus, it is the parents' responsibility to look after their children and keep them safe.

The Philippines became one of the first Asian countries to use Dengvaxia, the world's first dengue vaccine, in 2016 (Shin 2016). As part of the government's nationwide dengue immunization campaign, more than 800,000 Filipinos, mostly schoolchildren, were immunized. However, Fatima and Syed (2018) opined that the manufacturer of Dengvaxia, the French pharmaceutical company Sanofi Pasteur, announced in November 2018 that Dengvaxia may cause a person to develop a more severe type of dengue if they had never contracted the mosquito-borne disease prior to immunization. When the problem arose, there were reports that some of the Dengvaxia-vaccinated patients died, and they blamed the experimental vaccine. As a result, many people, particularly mothers, are sceptical not only of dengvaxia, but also of other proven effective vaccines. People's trust in country's immunization program is shaken, leading to a surge in other virus-related disease such as measles. This could be attributed due to lack of knowledge in dengue virus and about the benefits of vaccination .

Furthermore, primary prevention is the most effective measure in dengue prevention and control but the key success to control dengue depends not only on services provided by health authorities but also on the awareness of the community about preventing practices and their health-seeking behaviours. In this regard, the primary role of teacher which is to impart knowledge is an immediate action to promote awareness. Teachers can act as excellent educators by playing a key role of delivering important health education messages to school children and targeting an important health determinant – the health behaviour (Goel et 2018).

Thus, it is in this premise that the researchers came up of this research .

### 1.1. Statement of the Problem

The main purpose of this study is to determine the level of awareness of teachers and education students about Dengue. Specifically, this study sought to answer the following questions:

1. How may the profile of the teachers and Pre-service Teachers respondents be described in terms of the following:



### 1.1 Teachers' Profile

- 1.1.1 Age
- 1.1.2 Gender/Sex
- 1.1.3 Field of specialization
- 1.1.4 Highest Education Attainment
- 1.1.5 Number of years of teaching
- 1.1.6 Dengue Experience

### 1.2 Pre-service Teachers' Profile

- 1.2.1 Gender
- 1.2.2 Age
- 1.2.3 Dengue Experience

2. How may the level of awareness of the respondents on dengue be described?

3. How may the fallacies of the respondents on dengue be characterized?

## 2. METHODOLOGY

### 2.1. Research Design

Quantitative research method is a research method dealing with numbers and anything that is measurable in a systematic way of investigation of phenomena and their relationships.

According to Rivera (2022), quantitative research involves elucidating phenomena through the collection of numerical data, which are subsequently analyzed using mathematically based methods.

### 2.2. Participants

The respondents of the study are the 270 Pre-service teacher students and 41 teachers of College of Education

### 2.3. Instrument

The instrument was adopted from Department of Health (DOH). In addition, some of the questions were also made by the researchers, which were approved and validated by Dr. Salvacion Padunan.

The questionnaire for assessing the knowledge and fallacies on dengue of pre-service teachers and Teacher are composed of 30 items for both pre-service teacher and teacher

### 2.4. Data Analysis

The data for this study was collected through using the survey questionnaire.

### Statistical Statement

#### Weighted Mean

Where:

TWF= total weighted frequency

N= total numbers of respondents

In describing the results of the level of knowledge and fallacy of the Pre-service teachers and Teachers on the dengue virus. The scale below with the equivalent verbal interpretation was used as a basis of the study.

#### Interval Scale

1.00-1.74

1.75-2.49

2.50-3.24

3.25-4.00

#### Verbal Description

Extremely Aware

Moderately Aware

Slightly Aware

Not aware at all

### 2.5. Ethical Consideration

In conducting this research, ethical concerns were taken into consideration. The involved participants' permission was requested to answer the survey question, along with information about the study's objectives. It was made clear that even if they participated, their identities would be kept confidential after the responses were analyzed as per Data Privacy Act of 2012.



### 3. RESULTS AND DISCUSSIONS

#### I. Profile of the Respondents

##### 1.1 Teachers

**Table 1.1.1 Age of the Teachers Respondents**

Age	Frequency	Percentage
25 below	1	2 %
26 – 35	12	29 %
36 – 45	13	32 %
46 – 60	15	37 %
<b>Total</b>	<b>41</b>	<b>100%</b>

According to the table above, one respondent, or two percent, is aged 25 and under. Approximately 29%, or 12 people, are between the ages of 26 and 35. Meanwhile, 13 (32% of total respondents) are 36-45 years old, and 15 (37% of total respondents) are 46-60 years old. According to the results, the majority of respondents are between the ages of 46 and 60. Teachers are more knowledgeable in terms of having experienced dengue, and while some do not have personal experience with the virus, their family members have, which is why they are aware of it.

**Table 1.1.2 Gender of the Teachers Respondents**

Gender	Frequency	Percentage
Male	16	39%
Female	25	61%
<b>Total</b>	<b>192</b>	<b>100%</b>

Sixteen (16) of the respondents, or 39% of the total population, are men. Only 25%, or 61%, of all respondents are female. According to the data presented above, there are more female respondents than male respondents.

**Table 1.1.3 Field of Specialization of the Respondents**

Field of Specialization	Frequency	Percentage
English	6	15 %
Math	6	15 %
Science	5	12 %
MAPEH	10	24 %
Social Studies	2	5 %
T.L.E	3	7 %
Filipino	3	7 %
Prof. Education	6	15 %
<b>Total</b>	<b>41</b>	<b>100%</b>

According to Table 1.1.3, ten (24%) of the respondents are MAPEH teachers. English, Math, and Prof Education teachers account for six percent (15%) of all respondents. 5 (12%) of those polled are science teachers. TLE and Filipino teachers make up three percent of the total respondents' fields of specialization. 2 (5%) of those polled are Social Studies teachers. According to this data, the majority of teachers' fields of specialization are MAPEH, with only two respondents having a field of specialization in Social Studies.

**Table 1.1.4 Highest Educational Attainment of the Respondents**

Highest Educational Attainment	Frequency	Percentage
Master's Degree	25	60 %
W/ Doctorate Units	3	7 %
Doctorate Degree	13	31 %
<b>Total</b>	<b>41</b>	<b>100%</b>

Table 1.1.4 shows that 25 respondents, or 60%, have a Master's degree, 13 respondents, or 31%, have a Doctorate degree, and three respondents, or 7%, have Doctorate units.



**Table 1.1.5 Number of Years in Teaching of the Respondents**

Number of Years in Teaching	Frequency	Percentage
5 below	1	2 %
6-15	19	47 %
16-25	20	49 %
26 above	1	2 %
<b>Total</b>	<b>41</b>	<b>100%</b>

According to the data presented, twenty (20) respondents or 49% of the total population are already in the teaching service for 16-25 years; 19 respondents or 47% are in the teaching service for 6-15 years; 1 respondent or 2% is 5 years or less; and 1 respondent or 2% has more than 26 years of teaching service. This implies that the majority of respondents are in the teaching profession for 16 to 25 years.

**Table 1.1.6 Dengue Experience of the Respondents**

Dengue Experience	Frequency	Percentage
Yes	6	15 %
No	41	85 %
<b>Total</b>	<b>41</b>	<b>100%</b>

According to Table 1.1.6, 35 or 85% of respondents did not have the dengue virus, while 6 or 15% of respondents had the dengue virus. According to the findings, the majority of respondents have no prior experience with the virus.

## 1.2 Students

**Table 1.2.1. Gender of the Respondents**

Gender	Frequency	Percentage
Male	60	22 %
Female	210	78 %
<b>Total</b>	<b>270</b>	<b>100%</b>

According to Table 1.2.1, the respondents are made up of 210 females (78% of the total population) and 60 males (22% of the population). According to the data presented above, there are more female respondents than male respondents. There are more female pre-service teachers at Nueva Ecija University of Science and Technology's College of Education.

**Table 1.2.2 Age of the Respondents**

Age	Frequency	Percentage
19-20 years old	266	99 %
26-38 years old	4	1 %
<b>Total</b>	<b>270</b>	<b>100%</b>

According to Table 1.2.2, 266 respondents (or 99%) were between the ages of 19 and 20. Four respondents, or 1%, are between the ages of 26 and 38. According to this data, the majority of respondents are between the ages of 19 and 20.

**Table 1.2.3 Dengue Experience of the Respondents**

Dengue Experience	Frequency	Percentage
Yes	17	6 %
No	253	94 %
<b>Total</b>	<b>270</b>	<b>100%</b>

According to Table 1.2.3, 253 (or 94% of the respondents) had no experience with the dengue virus, while 17 (or 6%) had a case of dengue. According to the findings, the majority of respondents did not have dengue.



## II. Awareness on Dengue

### 2.1 Teachers

#### 2.1.1 Teacher Awareness on Dengue Virus

(n=41)

Awareness on Dengue Virus		WM	VI
1.	Loss of hearing is not symptom of dengue fever.	3.02	Slightly Aware
2.	The mosquitoes that carry dengue virus usually bites during day.	3.49	Not at all aware
3.	Aedes is responsible for dengue.	3.34	Not at all aware
4.	Virus is responsible for carrying dengue.	3.07	Slightly Aware
5.	The symptoms of dengue fever are rashes, constant vomiting, pain behind the eyes.	3.41	Not at all aware
6.	Dengue virus is carried by male mosquito.	2.88	Slightly Aware
7.	A person infected by dengue virus is characterized by fever with rash.	3.68	Not at all aware
8.	Mosquitoes that carry dengue virus usually bites during day and night.	2.68	Slightly Aware
9.	Dengue fever is also known as break bone fever.	2.12	Not at all aware
10.	A person infected by the dengue virus also experience bleeding due to decrease in platelet levels.	3.49	Not at all aware
11.	High fever is an observable symptom of dengue fever.	3.71	Slightly Aware
12.	To prevent fluid overload, loop diuretic procedure should be given to the patient.	2.56	Slightly Aware
13.	When a person is suspected to have a dengue fever, the incubation period must carefully observed. Incubation period refers to time between exposure and onset of symptoms.	3.07	Slightly Aware
14.	Clearing stagnant water is the best way of preventing the spread of dengue virus.	3.08	Slightly Aware
15.	3-14 days is the incubation period for dengue fever.	2.34	Moderately Aware
<b>Average Weighted Mean</b>		<b>3.11</b>	<b>Slightly Aware</b>

According to the table, respondents from the College of Education Teachers are only slightly aware of dengue virus awareness in terms of statements 1, 4, 6, 8, 12, 13, and 14. Respondents from the College of Education were also completely unaware of statements 2, 3, 5, 7, 10, and 11.

However, in terms of statements 9 and 15, respondents from the College of Education Teachers were moderately aware of dengue virus awareness.

The weighted mean of dengue virus awareness obtained by the factor awareness was (3.11), with a verbal interpretation of slightly aware. According to the findings, college of education teachers know very little about the dengue virus.

This result supported the findings of N.K. Ibrahim et al. (2009), who found that the current school-based mass communication campaign had a significant positive impact on knowledge and practices related to Dengue Fever prevention among the target groups. In terms of knowledge, the findings revealed a significant increase in the knowledge of students, teachers, and supervisors.

## III. Common Fallacy on Dengue Virus

### 2.2 Teachers

#### Table 2.2.2. Teachers' fallacies on Dengue virus

(n=41)

Fallacies on Dengue Virus		WM	VI
1.	Having dengue once means you won't be infected again.	1.73	Extremely Aware
2.	Dengue virus can be transmitted via cough, close contact, and body fluid with the infected person.	1.63	Extremely Aware
3.	You can only be infected with dengue through a bite of female Aedes aegypti and Aedes albopictus mosquito, which carry the virus.	3.02	Slightly Aware
4.	The distinct feature of Aedes aegypti is its white lyre-shaped markings and banded legs. The Aedes albopictus on the other hand, is its white dorsal stripe and banded legs.	2.98	Slightly Aware



5. Dengue virus has four different serotypes—or a distinct variation	2.61	Slightly Aware
6. Aedes mosquito carrying dengue virus only breed in dirty stagnant water.	2.51	Slightly Aware
7. Dengue occurs during the dry season particularly and not during the rainy season.	2.22	Moderately Aware
8. Drinking papaya leaves juice, tawa-tawa juice, sweet potato tops tea, and goat's milk can increase blood platelet count.	2.88	Slightly Aware
9. Skin rashes are secondary symptoms and does not occur in all dengue patients.	2.78	Slightly Aware
10. Aedesaegypti is the sole culprit of dengue.	2.44	Moderately Aware
11. Pain relievers or nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen must be avoided by dengue patients.	2.76	Slightly Aware
12. Low blood platelet count means severe dengue.	2.76	
13. Skin rashes is the first sign of dengue.	2.93	Slightly Aware
14. There are anti-dengue drugs available for treating dengue	1.8	Slightly Aware
15. Pain relievers can cure dengue and its symptoms.	1.61	Extremely Aware
<b>Average Weighted Mean</b>	<b>1.1</b>	<b>Extremely Aware</b>

According to the table, teachers from the College of Education are well-versed in dengue fever myths in terms of statements 1, 2, 14, and 15. Respondents were only slightly aware of statements 3, 4, 5, 6, 8, 9, 11, 12, and 13.

However, in terms of statements 7 and 10, the College of Education teacher-respondents are only moderately aware of the dengue fever myth. The weighted mean for the factor dengue fever fallacy was (1.1), with a verbal interpretation of "Extremely aware," indicating that College of Education Teachers are Extremely aware of dengue fever fallacy.

This finding supported the findings of Karimah A. et al. (2017), who discovered that while the majority of adults in Felda Sg. Paching Timur had good knowledge and practice, more than half of them had a negative attitude. As a result, the relevant agencies should step up their efforts to effectively provide adequate and correct information about dengue through mass media, whether through television, radio, or newspapers.

#### IV. Awareness on Dengue Virus

##### 4.1 Pre-service teachers

##### 4.1.1 Awareness on Dengue Virus

###### Pre-service Teachers' awareness on Dengue virus

(n=270)			
Awareness on Dengue Virus		WM	VI
1. Loss of hearing is not symptom of dengue fever.		2.49	Moderately Aware
2. The mosquitoes that carry dengue virus usually bites during day.		2.77	Moderately Aware
3. Aedes is responsible for dengue.		2.54	Moderately Aware
4. Virus is responsible for carrying dengue.		2.69	Moderately Aware
5. The symptoms of dengue fever are rashes, constant vomiting, pain behind the eyes.		2.9	Moderately Aware
6. Dengue virus is carried by male mosquito.		2.38	Moderately Aware
7. A person infected by dengue virus is characterized by fever with rash.		2.78	Moderately Aware
8. Mosquitoes that carry dengue virus usually bites during day and night.		2.56	Slightly Aware
9. Dengue fever is also known as break bone fever.		2.53	Moderately Aware
10. A person infected by the dengue virus also experience bleeding due to decrease in platelet levels.		2.89	Moderately Aware
11. High fever is an observable symptom of dengue fever.		2.92	Slightly Aware
12. To prevent fluid overload, loop diuretic procedure should be given to the patient.		2.67	Moderately Aware
13. When a person is suspected to have a dengue fever, the incubation period must carefully observed. Incubation period refers to time between exposure and onset of symptoms.		2.77	Moderately Aware
14. Clearing stagnant water is the best way of preventing the spread of dengue virus.		3.45	Moderately Aware
15. 3-14 days is the incubation period for dengue fever.		2.67	
<b>Average Weighted Mean</b>		<b>2.73</b>	<b>Moderately Aware</b>



According to the table, Pre-service Teachers are only moderately aware of the dengue virus in terms of statements 1, 2, 3, 4, 5, 6, 10, 11, 13, 14, and 15. Respondents who are pre-service teachers are only slightly aware of statements 8, 9, and 12.

The weighted mean for the factor awareness on dengue virus awareness was (2.73), with a verbal interpretation of moderately aware, indicating that pre-service teachers are moderately aware of dengue virus awareness. The findings show that pre-service teachers know very little about the dengue virus.

According to the findings of Mohammed A. et al. (2017), respondents have moderate knowledge of dengue fever, but their attitude toward dengue fever is still negative because they lack insight and are unconcerned about the effects of a dengue outbreak.

## V. Fallacies on Dengue

### 5.1 Pre-service teachers

#### 5.1.1 Fallacies on Dengue Virus

**Table 5.1.1. Pre-service teachers' fallacies on Dengue Virus**  
(n=270)

Fallacies on Dengue Virus	WM	VI
1. Having dengue once means you won't be infected again.	2.18	Moderately Aware
2. Dengue virus can be transmitted via cough, close contact, and body fluid with the infected person.	2.21	Moderately Aware
3. You can only be infected with dengue through a bite of female Aedes aegypti and Aedes albopictus mosquito, which carry the virus.	2.45	Moderately Aware
4. The distinct feature of Aedes aegypti is its white lyre-shaped markings and banded legs. The Aedes albopictus on the other hand, is its white dorsal stripe and banded legs.	2.35	Moderately Aware
5. Dengue virus has four different serotypes—or a distinct variation.	2.36	Moderately Aware
6. Aedes mosquito carrying dengue virus only breed in dirty stagnant water	2.42	Moderately Aware
7. Dengue occurs during the dry season particularly and not during the rainy season	2.34	Moderately Aware
8. Drinking papaya leaves juice, tawa-tawa juice, sweet potato tops tea, and goat's milk can increase blood platelet count.	2.64	Slightly Aware
9. Skin rashes are secondary symptoms and does not occur in all dengue patients.	2.51	Slightly Aware
10. Aedes aegypti is the sole culprit of dengue.	2.4	Moderately Aware
11. Pain relievers or nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen must be avoided by dengue patients.	2.33	Moderately Aware
12. Low blood platelet count means severe dengue.	2.5	Moderately Aware
13. Skin rashes is the first sign of dengue.	2.41	Moderately Aware
14. There are anti-dengue drugs available for treating dengue.	2.3	Moderately Aware
15. Pain relievers can cure dengue and its symptoms.	1.99	Moderately Aware
<b>Average Weighted Mean</b>	<b>2.33</b>	<b>Moderately Aware</b>

According to the table, Pre-service Teachers are moderately aware of dengue fever myths in terms of statements 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, and 15. Statements 8 and 9 are only vaguely known to pre-service teachers.

The weighted mean for the factor dengue fever fallacy was (2.33), with a verbal interpretation of "Moderately aware," indicating that Pre-service Teachers are moderately aware of dengue fever fallacy.

This result supported the findings of Geetu Malhotra<sup>1</sup>, et al (2014), who found that knowledge and awareness of dengue fever are generally inadequate, with only 59.25% of the sample having it. Rural areas had higher awareness (48.5%) than slum areas (30%). Only 72.62% of respondents said mosquitos were responsible for dengue transmission. Furthermore, people were unaware that dengue mosquitos bite during the day and breed in clean water.

## RECOMMENDATIONS

Based on the findings and conclusion presented, the following recommendations are suggested:

1. Raising the level of awareness among teachers and students through information dissemination methods such as seminars and forums.
2. The teacher should supplement the information by using pamphlets or campaign materials to raise health awareness.



3. The teacher should incorporate dengue awareness into their lessons to learn more about dengue awareness and to encourage students to apply what they have learned.

### AUTHORS' CONTRIBUTIONS

Rivera, A.T and Tumacder, J.O., contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the manuscript.

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