

KNOWLEDGE AND PREVENTIVE PRACTICES ON DENGUE AMONG RESIDENTS IN TAGBILARAN CITY

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ABSTRACT

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In hospitals, leadership is crucial in developing successful teamwork, enhancing nurse satisfaction, and providing high-quality patient care. The goal of this study was to investigate the relationship between the leadership styles of staff nurses working in hospitals in the First District of Bohol, Philippines, and their work environment. To gather information on organizational climate and leadership styles, the study used a descriptive-normative survey approach and a quantitative descriptive-correlational design. Participants got standardized questionnaires. The evaluation was undertaken in partnership with 53 nurses from three district hospitals in Maribojoc, Loon, and Catigbian. Participants were chosen at random. Frequency counts, percentages, and chi-square tests of association were used to assess relationships between workplace



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parameters, perceived leadership styles, and demographic traits. The results suggest that nurses regularly employed a blend of autocratic, democratic, and laissez-faire leadership styles, consistent with adaptive leadership principles. Overall, the work environment scored well, demonstrating solid organizational structures, cohesive cooperation, well-defined norms, and high standards of excellence. The statistical analysis indicates no significant association ($p = 0.937$) between the general work environment and leadership styles. Similarly, most demographic characteristics were not substantially associated with leadership styles, except for assignment ($p = 0.035$). The findings imply that, although people have sound judgments about leadership styles, broader organizational and contextual factors may have a stronger impact on nurses' job experiences. Some recommendations include strengthening leadership development and developing management methods suited to each unit.

INTRODUCTION

Dengue is a viral infection transmitted by the bite of an infected female *Aedes aegypti* mosquito. Pan American Health Organization, 2024. Urbanization, climate change, and increased travel have facilitated its rapid spread, making it a significant public health concern worldwide, particularly in tropical and subtropical regions. The escalating issue has placed a substantial burden on healthcare systems, disrupted community cohesion, and presented severe health risks to at-risk populations, such as the elderly, infants, and those with pre-existing health conditions. To mitigate the disease's transmission and impact on communities, it is imperative to increase awareness of Dengue and promote preventive measures, such as eliminating mosquito breeding sites, using protective clothing, applying insect repellents, and reinforcing public health initiatives. Local health officials have implemented a variety of strategies to address this growing concern, including community education initiatives, vector control measures, and prompt medical interventions to prevent Dengue. Despite ongoing efforts, dengue epidemics persist, raising questions about the effectiveness of current measures.

Thus, this study aims to develop a comprehensive guideline to improve dengue awareness and strengthen preventive measures in Tagbilaran City, thereby reducing cases and preventing future outbreaks. The study's findings will help assess residents' awareness of Dengue, identify the preventive management strategies currently employed by the community, and develop attainable community-based programs to improve current dengue prevention and management.

The theoretical framework of this study is influenced directly by Florence Nightingale's Environmental Theory, Nola Pender's Health Promotion Model, and Rosenstock's Health Belief Model (HBM).

Florence Nightingale's Environmental Theory highlights the importance

of maintaining a clean, well-ventilated, and sanitary environment to prevent illness and promote health, particularly in dengue prevention. According to Nightingale, environmental factors, such as sanitation, access to clean water, adequate lighting, and fresh air, directly impact health and recovery (Nightingale, 1860/1969). Nightingale's theory emphasizes the importance of maintaining a clean environment. To reduce the risk of Dengue, eliminating standing water and mosquito breeding sites is crucial. This theory aligns closely with key dengue prevention strategies, including vector control, community education, and public awareness campaigns, thereby reinforcing the link between environmental conditions and health outcomes.

Pender's Health Promotion Model emphasizes the importance of individual awareness, personal experiences, perceived benefits, and self-efficacy in motivating people to engage in health-promoting behaviors. This model can be used to examine how residents' levels of awareness and perceptions of Dengue impact their engagement in preventive behaviors. It also allows for assessing which factors encourage or hinder these health-promoting actions. By understanding these motivators and barriers, the study could inform the development of tailored interventions and educational programs that empower residents to take an active role in dengue prevention and promote a healthier community environment (Aqtam & Darawwad, 2018).

The Health Belief Model serves as a guide to explain how beliefs about health influence people's health behaviors. The Health Belief Model posits that health-related behavior is influenced by perceived threat and perceived effectiveness of the recommended behavior. Critical components include perceived susceptibility, perceived severity, perceived benefits, and perceived barriers (Jones et al., 2015). In terms of dengue awareness, this model can be applied to assess community perceptions of dengue risk and the effectiveness of preventive measures. Studies have shown that individuals' willingness to adopt preventive measures is influenced by increased public awareness of the risks of Dengue (Wong et al., 2014).

Dengue cases are arising as a health concern in the Philippines, a tropical country. Despite government efforts to control the spread of Dengue, outbreaks continue to rise. This difficulty in mitigating Dengue underscores the need for greater awareness and effective preventive measures. Moreover, it is crucial to understand transmission patterns, the effectiveness of interventions, and the factors that contribute to disease spread to develop targeted prevention and control approaches. These are crucial in alleviating the health burden and enhancing public health outcomes (Gregorio et al., 2024).

Dengue hemorrhagic fever, commonly known as dengue fever, can lead to fatal conditions, excessive bleeding, and a decrease in blood pressure. This virus-borne illness is characterized by symptoms such as fever, headache, joint and muscle aches, nausea, vomiting, and, occasionally, a rash. Particularly in Asia, dengue fever has been a significant public health concern for more than 200 years. Dengue viruses 1, 2, 3, and 4 are the four RNA virus serotypes that

cause the disease and belong to the family Flaviviridae (Akshata et al., 2024). It is primarily transmitted to humans through bites from infected female mosquitoes, particularly *Aedes aegypti* and, occasionally, *Aedes albopictus*. Usually, it occurs in cities and surrounding areas in tropical and subtropical regions. To control Dengue, it is important to understand how the disease spreads (Pereira, 2024). Early recognition of dengue symptoms is crucial, particularly in children. As shown in a study by Oncog and Pondoc (2017), common signs and symptoms among pediatric dengue patients included hepatomegaly (enlarged liver), abdominal pain, vomiting, and headache, which can be associated with other diseases. By paying close attention to these symptoms, healthcare workers and parents can quickly identify possible dengue cases, enabling earlier treatment and helping prevent severe complications. The study also noted that most children had either the classical form of dengue or mild dengue hemorrhagic fever, but all patients with the most severe form (grade IV) died, highlighting the dangers of delayed recognition and treatment (Oncog & Pondoc, 2017). The findings suggest that identifying these key symptoms, particularly in areas with high dengue incidence, can save lives. Early identification enables children to receive the care they need before their condition worsens. This is particularly important in places like Bohol, where Dengue is common among young children.

The evaluation of the National Dengue Prevention and Control Program in Bohol provided important insights into the program's effectiveness in reducing dengue cases. However, despite efforts to control Dengue through public health measures, challenges persist in fully reaching and protecting the population. One key result showed that although many people have access to health facilities, especially in urban areas, some rural and remote areas still experience limited access to timely dengue diagnosis and treatment. This gap can delay care and increase the risk of severe illness or death from Dengue. Community awareness and participation in dengue prevention activities are very important. It was noted that areas with higher community involvement in eliminating mosquito breeding sites and following health advisories tended to have fewer dengue cases, suggesting that, beyond government programs, educating and engaging residents to recognize symptoms and take preventive actions is crucial for controlling dengue outbreaks.

To address these challenges, efforts should focus on preparedness, improving health facilities, building capacity, and strengthening disease-monitoring systems. Key steps include training health workers, promoting regional collaboration, securing political support, and providing resources for research and mosquito control efforts. Community involvement and education are necessary to raise awareness and reduce the risk of dengue. This entails continued financial support and innovative interventions to mitigate the effects of Dengue, promote community health resilience, and advance global progress in disease management (Enitan et al., 2024). Another approach is to reduce mosquito populations and educate the public on how to prevent

mosquito bites. The approach emphasizes aquatic habitat management and targeted insecticide use, incorporating community-based actions (Saha, Sikdar, & Ghosh, 2023)

Control measures should prioritize Dengue and its associated risks. In the Philippines, the DOH has employed a strategy called 4S, which involves identifying and eliminating breeding habitats, properly using protective measures, consulting a physician immediately, and advocating for fogging in areas where cases are increasingly being reported. While such activities as the “4 o’clock habit” urge school-goers to regularly monitor sites around where mosquitoes may breed and then instill such habits in schools, continued growth in dengue cases calls for the relevant governmental offices to review such initiatives and improving them further as the activities can now directly relate to the reduction of casualties involved in the disease (Department of Health – Cordillera Center for Health Development (DOH-CAR) (2024)).

Mosquito-based surveillance strategies are critical for systematically preventing the spread of diseases such as dengue by detecting circulating viruses in specific areas. These methods, which involve screening mosquito populations, have been endorsed by public health agencies and are essential for managing complex and widespread disease scenarios. Vector surveillance and control efforts are particularly vital for controlling arbovirus transmission, as targeting vectors rather than pathogens or hosts is more effective. Effective dengue surveillance strategies emphasize detecting virus-infected mosquitoes to predict outbreaks, enabling timely vector control measures and improving preventive management (Das et al., 2024).

The effectiveness of eliminating breeding sites, noting that interventions aimed at making water containers unusable and conducting regular house inspections, led to a substantial reduction in mosquito larval density. Community involvement in regular inspections and habitat removal is crucial for long-term effectiveness, underscoring the importance of an integrated vector management approach (Buhler et al., 2019).

Behavior Change Communication (BCC) strategies, such as community involvement, distributing educational materials, organizing awareness campaigns, and conducting house-to-house visits, have been effective in raising awareness about Dengue and promoting safer practices, particularly in rural areas. These methods not only educate individuals about the risks of Dengue and its vector but also encourage active participation in community-based mosquito control measures (George, Paul, & Leelamoni, 2017). Studies have shown that community-based vector control programs are effective in reducing mosquito populations and dengue cases. Active community participation plays an important role in the effectiveness of dengue prevention strategies. The approaches and interventions being implemented not only reduce mosquito populations but are also cost-effective, underscoring the importance of engaging communities in such efforts (Liyane et al., 2019).

To enhance effective dengue prevention and management, efforts should

prioritize four main areas: designating dengue as a national health priority, fostering collaboration among diverse stakeholders, integrating community perspectives to encourage behavioral change, and developing sustainable, community-centered programs. Employing evidence-based strategies and an understanding of population changes are critical for developing adaptive and impactful education initiatives. Raising awareness and encouraging preventive actions require targeted educational programs, strong stakeholder collaboration, and active community participation. Sustainable programs that address the specific challenges of each community are key to long-term success in controlling dengue outbreaks. These approaches emphasize the importance of adaptability and collective effort in addressing mosquito-borne disease at both local and national levels (Shafie et al., 2024).

Using long-lasting insecticide-treated nets (LLITNs) to cover water containers is another preventive management technique that has been demonstrated to lower the Pupae per Person Index (PPI) by 60%. This suggests that raising public awareness is crucial, as long-term outcomes depend on community involvement in vector control management programs and compliance (Quintero et al., 2020).

In preventive management, diagnosing and treating dengue fever remain challenging due to the variability of diagnostic methods and tools. The lack of a universally effective dengue vaccine necessitates ongoing vector control as the primary preventive strategy. Moreover, uncertainties surrounding diagnostic approaches significantly impact clinical management and public health surveillance, highlighting the need for improved tools and standardized practices (Raafat, Blacksell, & Maude, 2019).

RESEARCH METHODOLOGY

The study employed a descriptive-correlational quantitative research design and a survey method for data collection. Three hundred eighty (380) randomly selected respondents aged 18-60 years residing in barangays Manga, San Isidro, Booy, Bool, and Mansasa of Tagbilaran City participated in the study. The sample size was computed to achieve a specified error rate at the 95% confidence level. A standardized questionnaire, "Attitude and Practice regarding Dengue Fever among the Healthy Population of Highland and Lowland Communities in Central Nepal" (Dhimal et al., 2014), was used to assess respondents' knowledge and preventive practices regarding dengue. The tool is composed of 44 items (9 items on Knowledge of dengue symptoms, 15 on modes of transmission, and 20 on practice). The questionnaire has been previously validated and demonstrated acceptable reliability in similar populations (Dhimal et al., 2014). A Dichotomous Scale of Yes or no questionnaire was used to measure the respondents' knowledge and Preventive Practices towards Dengue using the following scales:

KNOWLEDGE	Description	TRANSMISSION	
Score Range	Good knowledge	Score Range	Description
16–20	Poor knowledge	12-15	Good knowledge
0–15	Description	0–11	Poor knowledge
	Good knowledge		
	Poor knowledge	PRACTICE	
SYMPTOMS		Score Range	Description
Score Range		16-20	Good Practice
7-9		0-15	Poor Practice
0-6			

Data gathering included eight phases: requested approval from the Dean of the College of Nursing to conduct the study, secured Ethics Review Committee approval, obtained support from the Dean and Vice President of Academics, gained permission from the City Health Office and barangay officials to conduct the study, distributed informed consent forms and ensure confidentiality, data collected, coded, interpreted and ethical review compliance, and analyzed results.

The researchers underwent a thorough review by the Research Ethics Committee before conducting the study. After securing the ethics certificate to conduct further research, the researcher obtained the necessary permissions and consent from the Dean of the College of Nursing and the Vice President for Academics of the University of Bohol. Before the actual distribution of the questionnaire, a letter of approval was obtained from the Provincial Health Office Head. The residents of each purok in the 5 selected barangays of Tagbilaran City were informed of their rights and the study's objectives. Furthermore, they were assured of the utmost confidentiality of the data. Respondents were notified to affix their signatures, signifying their willingness to participate in the study. The gathered data were coded and subjected to a normality test to guide the selection of appropriate statistical tools. Parametric tests were used for normally distributed data, whereas nonparametric tests, such as Spearman's Rank Correlation and the Chi-Square Test, were used for nonnormal data. Frequency and percentage distributions were used to describe the respondents' demographic profile. The relationships among demographic variables were analyzed using Spearman's Rank Correlation and the Chi-square test. Additionally, Spearman's Rank Correlation was used to assess the relationship between the respondents' level of knowledge and the extent of dengue prevention.

RESULTS AND DISCUSSION

The study examined the respondents' demographic profile. Findings revealed that the largest proportion of respondents (35%) were aged 20-29 years. By gender, the majority were female, comprising 236 respondents (62.1%). Regarding educational attainment, 108 respondents (28.4%) were college undergraduates. Employment status data indicated that 158

respondents (41.6%) were unemployed. Additionally, most respondents had resided in their current residence for fewer than 5 years. In terms of household composition, a substantial majority—224 respondents (58.9%)—belonged to households with five to nine family members.

Level of Knowledge on Dengue Symptoms. The results indicated that among the 380 respondents, 203 (53.4%) demonstrated poor knowledge of dengue symptoms, whereas 177 (46.6%) demonstrated good knowledge. This distribution highlights a significant knowledge gap, as more than half of the participants lack an adequate understanding of dengue symptoms. Such limited knowledge may hinder timely disease recognition and delay appropriate health-seeking behavior, thereby increasing the risk of severe outcomes. These results are consistent with those of Lozano (2018), who reported that although most respondents were familiar with common dengue symptoms such as fever, rash, and headache, awareness of less prominent but critical symptoms—such as retro-orbital pain—was notably low. This suggests that existing health education initiatives may not have sufficiently addressed the full spectrum of dengue symptoms, potentially impairing the public's ability to identify early warning signs and respond effectively.

Level of Knowledge on Dengue Modes of Transmission. The data illustrate respondents' knowledge of dengue transmission modes. Of the 380 respondents, 247 (53.4%) had good knowledge of dengue transmission. The results imply that existing health promotion initiatives have a measurable impact, but further efforts are still needed. Educational interventions must be sustained, intensified, and strategically targeted to achieve their full potential. However, the fact that 133 respondents (35%) still have poor knowledge suggests some gaps need to be addressed.

The data are supported by Gregorio et al. (2024), who examined the knowledge, attitudes, and practices regarding Dengue among public school teachers in Pampanga. Their research found that most respondents (95.5%) were aware that Dengue is not transmitted through skin-to-skin contact, and 90.7% were aware that it is not transmitted through sexual intercourse, suggesting a high level of general awareness. Nevertheless, 53.5% recognized that dengue can be co-transmitted through blood transfusion, revealing gaps in understanding and highlighting less commonly known transmission routes.

Level of Knowledge on Dengue Symptoms and Transmission. Table 4 highlights the respondents' overall knowledge of Dengue. Data revealed that overall knowledge of dengue (57.4%) was poor, indicating a significant gap in public awareness despite ongoing health campaigns in the city. Nevertheless, it is important to acknowledge that 42.6% of respondents demonstrated good knowledge of dengue fever, including its signs and symptoms and transmission, suggesting that existing health campaigns have had a positive impact on a portion of the population. These individuals can serve as community health advocates, influencing others and expanding awareness among more vulnerable groups. This finding is consistent with Phuyal et al.

(2022), who investigated dengue awareness in Central Nepal and found that general knowledge and preventive practices were low. Only a small percentage (2.3%) achieved high knowledge scores, indicating that many respondents lacked sufficient understanding of Dengue despite its significance as a public health concern.

Respondent's Extent of Preventive Practices to Avoid Dengue.

Results showed that of 380 respondents, 196 individuals (51.6%) had "poor preventive practices" against Dengue, indicating they were not regularly or properly performing preventive actions. Meanwhile, 184 respondents (48.4%) reported "good preventive practices," such as eliminating mosquito breeding sites, using insecticide sprays, covering water containers, and maintaining cleanliness. The findings indicate that more than half of the respondents are not effectively practicing preventive measures, potentially increasing the risk of dengue transmission in the community. A study by Hossain et al. (2024) emphasized the importance of improving public education to raise awareness and improve dengue prevention practices. They noted that continuous health initiatives, particularly in rural and high-risk areas, are crucial for educating communities about the spread of Dengue, mosquito breeding sites, and appropriate treatment options. Additionally, a study by Guad et al. (2021) found that many people held misconceptions and negative attitudes toward dengue prevention.

Relationship Between Respondents' Profiles and Their Knowledge of Dengue Prevention Practices. Table 1 presents the relationship between respondents' demographic characteristics and their knowledge of dengue prevention. The analysis revealed that age, sex, educational attainment, occupation, and length of residence were not significantly associated with knowledge levels ($p > 0.05$). These findings suggest that these sociodemographic factors do not significantly influence individuals' understanding of dengue prevention strategies. The finding is consistent with those of Guad et al. (2021) and Alhoot et al. (2017), who emphasized that demographic variables, including education, do not strongly affect knowledge of Dengue. However, a significant relationship was found between family size and knowledge level ($p = .016$), indicating that households with more family members tend to have higher knowledge of dengue prevention. The result aligns with the study by Rakhmani and Zuhriyah (2024), which found that families with more than 5 members were 1.90 times as likely to practice dengue prevention as families with fewer than 5 members. The results suggest that larger families may be more proactive and informed in protecting their members from Dengue, highlighting the importance of targeting health education efforts not only by individual factors but also considering household dynamics.

Table 1. *Relationship Between Respondents' Profile and Level of Knowledge on Dengue Prevention Practices (n = 380)*

Variable	Statistical Test Used	Test Value	P-Value	Decision	Interpretation
Age and Level of Knowledge	Spearman's Rank Correlation Test	-0.011	.832	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Sex and Level of Knowledge	Chi-Square Test	0.001	.971	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Educational Attainment and Level of knowledge	Chi-Square Test	5.883	.318	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Occupation and Level of knowledge	Chi-Square Test	5.621	.229	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Length of residency and Level of knowledge	Spearman's Rank Correlation Test	-0.001	.978	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Family Size and Level of knowledge	Spearman's Rank Correlation Test	-0.124	.016	Reject the null hypothesis	There is a significant relationship between the variables.

Relationship Between Respondents' Profiles and the Extent of Dengue Prevention Practices. Table 2, which illustrates the correlation between the demographic characteristics of respondents and their dengue prevention practices, indicates that only age and educational attainment were statistically significant. Spearman's Rank Correlation Test indicates a negative correlation between age and dengue prevention behaviors ($r = -0.145$, $p = 0.004$). This suggests that younger individuals are more inclined to implement preventive measures, such as enclosing water containers, using repellents, and eliminating mosquito reproductive sites. The physical capacity to implement preventive measures is greater in younger individuals, and they are more exposed to modern health campaigns and digital health information.

Ahmad et al. (2023) and Rahman et al. (2022) found that younger age groups, particularly students, exhibit more proactive attitudes and practices and possess greater knowledge of dengue prevention. This finding lends credence to the aforementioned. Conversely, there was no significant correlation between dengue prevention behaviors and sex, occupation, length of residence, or family size. The Chi-Square Test for sex ($p = 0.928$) suggests that males and females

exert comparable efforts to regulate dengue. Although Rahman et al. (2022) reported marginally higher scores among women for attitude and practice, these differences were not statistically significant. Although studies such as Fetansa et al. (2021) suggest that healthcare workers may implement better practices in other contexts, occupational analysis ($p = 0.217$) also indicated no significant impact. In the same vein, dengue prevention behaviors were not substantially influenced by family size ($p = 0.476$) or length of residency ($p = 0.488$). Nevertheless, the potential advantages of household-level education interventions and sustained community engagement for enhancing practices have been underscored by researchers such as Sulistyawati et al. (2017) and Wong et al. (2023). Educational attainment was significantly correlated with dengue prevention practices ($X^2 = 7.49, p = 0.003$). Individuals with higher levels of education exhibited superior preventive behaviors, which is likely attributable to their improved understanding and access to health information. For example, postgraduates, who accounted for only 2.4% of the respondents, demonstrated a higher level of engagement in preventive strategies, whereas those with only elementary education exhibited inferior practices. The outcome is consistent with the findings of Diaz-Quijano et al. (2018), who found that higher educational attainment is associated with greater understanding and application of dengue prevention. Overall, the study highlights that age and education are key determinants of dengue preventive practices, whereas other demographic characteristics appear to play a less significant role.

Table 2. *Relationship Between Respondents' Profile and Extent of Preventive Practice towards Dengue (n = 380)*

Variables	Statistical Test Used	Test Value	P-value	Decision	Interpretation
Age and Preventive Practices	Spearman's Rank Correlation Test	-0.145	.004	Reject the null hypothesis.	There is a significant relationship.
					between the variables.
Length of residency and Preventive Practices	Spearman's Rank Correlation Test	-0.036	.488	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Family Size and Preventive Practices	Spearman's Rank Correlation Test	0.037	.476	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Sex and Preventive Practices	Chi-Square Test	0.008	.928	Failed to reject the null hypothesis.	There is no significant relationship between the variables.
Educational Attainment and Preventive Practices	Chi-Square Test	17.730	.003	Reject the null hypothesis.	There is a significant relationship between the variables.
Occupation and Preventive Practices	Chi-Square Test	5.776	.217	Failed to reject the null hypothesis.	There is no significant relationship between the variables.

Correlation Between the Respondents' Level of Knowledge and Extent of Dengue Prevention Practice. Table 3 presents the correlation between respondents' knowledge levels and the extent of dengue prevention practices. The data was analyzed using Spearman's Rank Correlation Test. The results revealed $p < .001$, which corresponds to a 0.05 level of significance. This leads to the rejection of the null hypothesis, indicating a significant relationship between the variables. This finding suggests that an individual's knowledge level significantly affects the extent to which they adopt dengue prevention measures. As knowledge and awareness increase, so does the likelihood of engaging in preventive practices. This finding is consistent with the study conducted by Nejati et al. (2024) among healthcare professionals in southeastern Iran, which found a strong positive association between knowledge and practice. In their research, professionals with a higher

understanding of Dengue were significantly more likely to engage in correct prevention practices. The researchers emphasized that enhanced awareness directly influences behavior and improves public health outcomes in high-risk areas.

Table 3. *Correlation Between the Respondents' Level of Knowledge and Extent of Dengue Prevention Practice (n = 380)*

Variable	Statistical Test Used	Test Value	P-Value	Decision	Interpretation
Level of knowledge and Preventive Practice	Spearman's Rank Correlation Test	0.290	< .001	Reject the null hypothesis.	There is a significant relationship between the variables.

CONCLUSION

More than half of the respondents exhibited poor overall knowledge of dengue (57.4%), and a comparable proportion demonstrated inadequate preventive practices (51.6%), indicating a critical gap between knowledge acquisition and behavioral implementation. These findings underscore persistent community-level vulnerabilities that may sustain dengue transmission. Consistent with Florence Nightingale's Environmental Theory, the results highlight the central role of environmental sanitation and household-level source reduction in mitigating the risk of mosquito-borne diseases. Furthermore, in line with Nola Pender's Health Promotion Model and the Health Belief Model, inadequate preventive practices may reflect low perceived susceptibility, limited self-efficacy, and insufficient reinforcement of health-promoting behaviors. Strengthening integrated, community-centered interventions that combine environmental management with behavior-focused health education is therefore essential to enhance risk perception, promote sustained preventive action, and reduce the public health burden of dengue in endemic urban settings.

RECOMMENDATION

Based on the findings of the study entitled "Knowledge and Preventive Practices on Dengue among Residents in Tagbilaran City," the following recommendations are hereby presented to improve the community's awareness and preventive efforts against Dengue:

1. The City Health Office, in coordination with barangay health workers and local officials, should prioritize implementing continuous and comprehensive health education programs. These programs should focus on enhancing residents' knowledge of dengue

symptoms, transmission, and preventive practices, particularly in the identified barangays of Manga, San Isidro, Booy, Bool, and Mansasa. Health education must be inclusive and delivered through culturally appropriate and accessible methods such as house-to-house campaigns, barangay assemblies, school-based sessions, and locally translated IEC materials.

2. The Department of Health's updated 5S Strategy should be fully implemented and reinforced across all barangays in Tagbilaran City. The 5S Strategy includes: Search and destroy mosquito breeding sites; Self-protection measures; Seek early consultation; Support fogging in outbreak areas; and Sustain adequate hydration. Local government units are advised to integrate the strategy into community-level planning, conduct regular monitoring and evaluation, and actively involve the public in its execution.
3. Given respondents' limited knowledge of dengue symptoms and modes of transmission, health promotion activities should emphasize recognizing early signs and symptoms, such as high fever, rash, muscle and joint pain, and bleeding. Additionally, campaigns should provide accurate information about *Aedes* mosquito behavior, particularly their breeding in clean, stagnant water and their biting patterns during early morning and late afternoon.
4. Given that individuals aged 60 to 69 were identified as the least represented age group in the study, age-specific health interventions should be designed and implemented for this group. These may include home-based education sessions, integration into senior citizen programs, and the use of age-appropriate communication tools such as visual aids, audio materials, and simplified instructions to ensure understanding and participation in dengue prevention.
5. Promote Continuous Community and Family Engagement. Conduct ongoing dengue education and clean-up activities with families, schools, and local groups to raise awareness and encourage daily preventive measures.
6. Enhance Communication Through Multiple Channels. The City Health Office should use social media, radio, and community announcements to regularly remind and inform residents about dengue prevention, particularly during peak transmission periods.

By shifting from a reactive to a proactive and sustained approach to dengue control, Tagbilaran City can better protect its residents and reduce the frequency and severity of dengue outbreaks.

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