HOUSEHOLD DENGUE OUTBREAK PREPAREDNESS AND PREVENTION PRACTICES AMONG SELECTED BARANGAYS IN KIDAPAWAN CITY

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Abstract : Dengue remains a persistent public health concern in the Philippines, where the effectiveness of community-based prevention depends partly on household preparedness and environmental management. This study assessed household dengue outbreak preparedness and prevention practices and examined their statistical relationship among adult residents of Barangays Poblacion and Singao, Kidapawan City, Philippines. A quantitative, cross-sectional descriptive-predictive design was employed involving 120 adult residents recruited through availability-based convenience sampling. Data were collected using a modified, expert-validated questionnaire measuring Household Resource Management, Environmental Factors, Mosquito Breeding Prevention, Mosquito Control Measures, and Dengue Transmission Prevention. Descriptive statistics, Pearson's correlation, and multiple linear regression were used for analysis. Household dengue preparedness was moderate (M = 2.80, SD = 0.90), as were prevention practices (M = 2.85, SD = 0.91). Environmental Factors obtained a higher preparedness mean (M = 2.89) than Household Resource Management (M = 2.72), while Mosquito Control Measures had the lowest mean among prevention-practice dimensions (M = 2.74). Household preparedness demonstrated a strong positive correlation with prevention practices ($r = .830$, $p < .001$). The regression model was statistically significant ($F = 202.410$, $p < .001$), with an adjusted R^2 of .772, indicating that Household Resource Management and Environmental Factors collectively explained approximately 77.2% of the variance in reported dengue prevention practices after adjustment for the number of predictors. These findings indicate that household resource management and environmental preparedness are closely associated with reported dengue prevention practices, although causal relationships cannot be established. Strengthening community-based dengue prevention requires integrated household education, environmental sanitation, and targeted interventions addressing inconsistently implemented mosquito-control measures.

Index Terms **- dengue prevention, household preparedness, environmental factors, mosquito control, community health nursing**

INTRODUCTION

Dengue remains a major public health concern in tropical and subtropical regions, where recurring outbreaks continue to challenge healthcare systems and community-based disease prevention. Transmitted primarily through the bite of infected Aedes aegypti mosquitoes, dengue can cause illness ranging from mild febrile symptoms to severe complications, including hemorrhage, shock, and organ impairment (World Health Organization [WHO], 2024). Although preventive measures are well established, their implementation within households remains inconsistent. Arham et al. (2025), in a systematic review of dengue-related knowledge, attitudes, and practices among Asian households, examined the relationship between community awareness and preventive behaviors. The persistence of dengue transmission despite available prevention recommendations underscores the need to examine household preparedness and the regular implementation of preventive practices.

Household dengue preparedness encompasses the management of household resources and environmental conditions that may facilitate or reduce mosquito breeding and transmission. Household resource management involves practices such as proper water storage, disposal of discarded materials, maintenance of household containers, and routine sanitation activities. Improperly maintained containers and accumulated waste may

create breeding environments for Aedes mosquitoes. Bowman et al. (2016), in their systematic review and meta-analysis of dengue vector-control interventions, examined the evidence supporting different approaches to mosquito control. Environmental conditions also influence dengue transmission through interactions involving rainfall, temperature, humidity, urbanization, and mosquito breeding opportunities. These considerations demonstrate the relevance of examining household resource management and environmental preparedness alongside the implementation of dengue prevention practices.

The implementation of preventive measures remains an important concern in communities where dengue-related health information is available. Guad et al. (2021), in their systematic review and meta-analysis of questionnaire-based dengue studies in the Philippines, examined evidence concerning dengue-related knowledge, attitudes, and practices across different populations. Their review provides a national context for understanding the behavioral dimensions of dengue prevention. In addition, Montenegro-Quiñonez et al. (2023), through a systematic review and meta-analysis of household-level interventions against Aedes mosquitoes and dengue, examined the potential contributions of household-based vector-control measures. These investigations demonstrate the relevance of both household practices and environmental interventions in dengue prevention. In the Philippines, the Department of Health (DOH, 2023) promotes the 4S Strategy, which includes searching for and destroying mosquito breeding sites, adopting self-protection measures, seeking early consultation, and supporting appropriate fogging during outbreaks. Nevertheless, Bañaga et al. (2024), in their investigation of dengue risk perceptions, attitudes, and preventive practices in Davao City, highlighted the importance of examining how dengue-related perceptions relate to preventive behaviors in local communities.

The study was informed by the Health Belief Model and Florence Nightingale's Environmental Theory. The Health Belief Model proposes that preventive health behaviors are influenced by perceived susceptibility, perceived severity, anticipated benefits, and barriers to action (Rosenstock, 1974). Within dengue prevention, these concepts provide a behavioral perspective for understanding why individuals may differ in their willingness to implement recommended preventive measures. Nightingale's Environmental Theory, as discussed by Alligood (2022), emphasizes the importance of sanitary surroundings, safe water, adequate drainage, ventilation, and environmental cleanliness in maintaining health. This perspective supports the relevance of household resource management and environmental conditions in dengue prevention. Although the present study did not directly measure Health Belief Model constructs, these theoretical perspectives provided a basis for considering behavioral and environmental dimensions of household preparedness.

The need to examine these relationships is particularly relevant in Kidapawan City, Cotabato Province, Philippines, where dengue continues to present a recurring community health concern. According to the Kidapawan City Epidemiology and Surveillance Unit (CESU, 2024), the city recorded 1,155 dengue cases in 2024, including 257 cases in Barangay Poblacion and 93 cases in Barangay Singao. Although reported cases declined in 2025, dengue transmission persisted, with surveillance reports documenting additional cases and deaths through April 2026 (CESU, 2025, 2026). These figures demonstrate the continuing relevance of household and community dengue prevention in both barangays. Previous investigations have examined dengue knowledge, attitudes, risk perceptions, environmental conditions, and preventive behaviors across different settings. However, the literature reviewed for the present study did not establish how household resource management and environmental preparedness were statistically associated with reported dengue prevention practices among adult residents of Barangays Poblacion and Singao. This localized empirical gap warranted an investigation examining household preparedness alongside prevention practices in communities experiencing recurrent dengue transmission.

Accordingly, this study aimed to assess household dengue preparedness (HDP) and dengue prevention practices (DPP) among adult residents of Barangays Poblacion and Singao, Kidapawan City. Specifically, it sought to determine the level of HDP in terms of household resource management (HRM) and environmental factors (EF), and assess the extent of DPP across mosquito breeding prevention (MBP), mosquito control measures (MCM), and dengue transmission prevention (DTP). The study further examined whether HDP was significantly associated with DPP and whether HRM and EF independently and collectively predicted DPP scores. These objectives addressed four interrelated research questions concerning preparedness levels, prevention practices, their statistical relationship, and the predictive contributions of the two preparedness dimensions. The findings were intended to provide locally relevant evidence for community health nursing

interventions, household health education, environmental sanitation programs, and barangay-level dengue prevention planning.

SIGNIFICANCE OF THE STUDY.

The continued occurrence of dengue outbreaks in Kidapawan City highlights the need to examine household preparedness and the consistent implementation of dengue prevention practices, particularly in communities with documented dengue transmission. Although dengue prevention measures are widely promoted, their implementation at the household level may vary according to resource management, environmental conditions, and access to preventive measures. This study was undertaken to assess household dengue preparedness and prevention practices among adult residents of Barangays Poblacion and Singao and to determine the statistical relationships between household resource management, environmental factors, and reported preventive behaviors.

The findings may provide community members with practical information for strengthening household sanitation, mosquito breeding-site elimination, and personal protection. They may also assist barangay health stations, community and public health nurses, and local government units in identifying areas requiring greater attention, particularly household resource management and mosquito-control measures. For nursing practice and education, the findings offer locally relevant evidence that may inform household health education, environmental health assessment, and community-based dengue prevention initiatives. Furthermore, the study may serve as a reference for future investigations examining barriers to preventive practices and the effectiveness of interventions designed to strengthen household preparedness and dengue prevention.

STATEMENT OF THE PROBLEM

This study aims to assess household dengue preparedness and prevention practices in Barangays Singao and Poblacion, Kidapawan City. To achieve the objectives of the study, the researcher seeks to answer the following questions:

1. What is the level of household dengue preparedness of the respondents during the dengue outbreak in Barangay Singao and Poblacion, Kidapawan City, in terms of:
1.1 Household Resource Management; and
1.2 Environmental Factors?
2. What are the prevention practices of the respondents in terms of:
2.1 Mosquito breeding;
2.2 Mosquito Control Measures; and
2.3 Dengue transmission?
3. Is there a significant relationship between the level of household dengue preparedness and prevention practices of the respondents?
4. Does household dengue preparedness significantly influence the respondents' prevention practices?

HYPOTHESES

This study is guided by the following null hypothesis, which will be formulated to determine the relationship between the determinants of preparedness and household dengue preparedness and prevention practices among residents of Barangay Singao and Poblacion, Kidapawan City.

H_{01}: There is no significant relationship between the level of household dengue preparedness and prevention practices among the respondents.
H_02: The household dengue preparedness does not significantly influence the prevention practices.

RESEARCH METHODOLOGY

Research Design

This study employed a quantitative, cross-sectional descriptive-predictive research design to examine HDP and DPP among adult residents of selected barangays in Kidapawan City, Philippines. The design allowed the researcher to describe the levels of household preparedness and prevention practices, examine naturally

occurring associations between these variables, and determine the statistical contributions of preparedness dimensions to reported prevention practices. As the variables were measured without experimental manipulation, the design did not permit causal inference.

HDP was operationalized through two dimensions, HRM and EF, which served as the predictor variables in the regression analysis. DPP constituted the outcome variable and comprised three domains: MBP, MCM, and DTP.

Participants, Sample Size, and Sampling

Participants were adult residents of Barangays Poblacion and Singao, Kidapawan City. Residents were eligible if they were at least 18 years old, literate, had resided in either barangay for at least one year, and were willing to provide informed consent. Individuals who did not satisfy these eligibility requirements or declined participation were excluded. The individual adult resident, rather than the household, constituted the sampling unit because each questionnaire was completed by one respondent.

The minimum sample size was estimated using G*Power 3.1, with a specified effect size of 0.30, a significance level of $\alpha = .05$, and statistical power of 80%. The calculation yielded a minimum required sample of 84 participants. During recruitment, 36 additional eligible residents were available and consented to participate. Following consultation with the study statistician, these respondents were included, resulting in a final analytic sample of 120 participants.

Participants were recruited through availability-based convenience sampling, a non-probability sampling technique adopted because a complete sampling frame of eligible adult residents in the two barangays was unavailable. Eligible residents who were present and accessible during the data-collection period were approached, screened against the inclusion criteria, and invited to participate. Recruitment continued until 120 participants were enrolled. Because selection was based on accessibility rather than random sampling, the findings cannot be assumed to represent all adult residents of Barangays Poblacion and Singao.

Research Instrument

Data were collected using a modified structured questionnaire adapted from Jamito et al. (2026), entitled *Household, Institutional, and Community Determinants Associated with Dengue Prevention Preparedness*. The instrument was reviewed and modified to align with the objectives, operational definitions, and variables of the present study.

The questionnaire consisted of three parts. Part I collected respondents' demographic and residency information, including age, length of residency, and optional identification details, which also supported verification of eligibility. Part II assessed HDP through two dimensions: HRM, which measured reported activities involving the organization, use, and maintenance of household resources relevant to dengue prevention; and EF, which assessed reported environmental conditions and activities associated with mosquito breeding and household preparedness. Part III measured DPP across three domains: MBP, MCM, and DTP, representing activities directed toward reducing mosquito breeding sites, controlling mosquito exposure, and preventing dengue transmission within household and community environments.

Parts II and III employed a four-point Likert-type response scale: Always (4), Oftentimes (3), Sometimes (2), and Never (1). Higher scores indicated more frequent performance or observation of the corresponding preparedness activities, environmental conditions, or prevention practices, according to the instrument's scoring rules.

Variable Measurement and Scoring

The principal study variables were HDP and DPP, measured using respondent-reported scores derived from the corresponding questionnaire dimensions. HDP comprised HRM and EF, which served as the predictor variables in the regression analysis. DPP comprised MBP, MCM, and DTP and served as the principal outcome variable.

Mean scores were used to describe the reported levels of each dimension and the overall HDP and DPP measures. Responses were interpreted using four predefined categories: High (3.26–4.00), Moderate (2.51–3.25), Low (1.76–2.50), and Very Low (1.00–1.75). Higher scores were interpreted as indicating higher reported levels of preparedness or more frequent implementation of dengue prevention practices, according to the instrument's scoring rules.

For descriptive analysis, means and standard deviations were calculated for the individual dimensions and overall variables. For inferential analysis, the overall HDP and DPP scores were examined using Pearson's correlation, while HRM and EF were entered as separate predictors of DPP in the multiple linear regression model.

Data Collection Procedure

Research activities were undertaken from January to October 2026, encompassing preparatory activities, instrument development and validation, participant recruitment, data collection, and statistical analysis. Ethical approval was obtained from the Davao Doctors College Research Office on August 6, 2026, under Form No. RO-DOCFORM-2024-006. Participant recruitment and questionnaire administration commenced only after ethical approval and the necessary academic and local administrative permissions had been secured.Eligible adult residents of Barangays Poblacion and Singao, Kidapawan City, were approached through availability-based convenience sampling. Prospective participants were screened against the eligibility criteria and informed of the study's objectives, procedures, voluntary nature, and confidentiality safeguards. Written informed consent was obtained before administering the modified and validated questionnaire.Questionnaire administration continued until 120 eligible respondents had participated. Completed questionnaires were reviewed for completeness, organized, and coded for data processing. Responses were subsequently encoded and analyzed using IBM SPSS Statistics, version 23. Confidentiality was maintained throughout data collection, processing, and analysis.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics, version 23. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarize respondent characteristics and assess the levels of HDP and DPP across their respective dimensions. Mean scores were interpreted according to the predefined four-point classification scale.Pearson’s product-moment correlation coefficient was used to examine the direction, magnitude, and statistical significance of the relationship between HDP and DPP. Multiple linear regression was subsequently performed to determine the individual and combined statistical contributions of HRM and EF to DPP, with HRM and EF entered as predictor variables and the overall DPP score designated as the outcome variable.Regression results were evaluated using unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t statistics, p values, and 95% confidence intervals (CI). The F statistic was used to assess overall model significance, while adjusted R^2 indicated the proportion of variance in DPP scores explained by the predictors after adjustment for the number of predictors. All inferential analyses were evaluated at a significance level of $\alpha = .05$. Given the cross-sectional observational design, statistically significant associations and regression coefficients were interpreted as statistical relationships rather than evidence of causation.

Ethical Considerations

The study received ethical approval from the Davao Doctors College Research Office on August 6, 2026, documented under Form No. RO-DOCFORM-2024-006. Academic and local administrative permissions were also secured before conducting the study in Barangays Poblacion and Singao, Kidapawan City.The study adhered to established ethical principles concerning informed consent, voluntary participation, privacy, and confidentiality. Necessary academic and local administrative permissions were secured before data collection. Eligible respondents were informed of the study’s purpose, procedures, potential risks and benefits, and their right to decline or withdraw without penalty. Written informed consent was obtained before questionnaire administration. Participation involved minimal risk, and respondents’ personal information was protected throughout the research process. Data were used exclusively for research purposes and reported in aggregate

form to preserve anonymity. Confidentiality and data protection measures were implemented in accordance with Republic Act No. 10173, or the Philippine Data Privacy Act of 2012.

RESULTS AND DISCUSSION

The study examined household dengue outbreak preparedness and prevention practices among 120 adult residents of Barangays Poblacion and Singao, Kidapawan City. Data were analyzed using descriptive statistics, Pearson's product-moment correlation, and multiple linear regression. The findings are presented according to the four research questions, beginning with the levels of household preparedness and prevention practices, followed by their statistical relationship and the predictive contributions of the preparedness dimensions.

Table 1 presents the respondents' reported levels of HDP across HRM and EF.

Table 1. *Level of Household Dengue Outbreak Preparedness*

Indicators	Mean	SD	Interpretation
Household Resource Management	2.72	0.91	Moderate
Environmental Factors	2.89	0.89	Moderate
Overall	**2.80**	**0.90**	**Moderate**

Note: 3.26–4.00 = High; 2.51–3.25 = Moderate; 1.76–2.50 = Low; 1.00–1.75 = Very Low. SD = Standard Deviation.

The overall level of HDP was moderate (M = 2.80, SD = 0.90), indicating that respondents reported undertaking household and environmental preparedness activities, although these were not consistently performed at the highest frequency. This finding suggests that preparedness-related behaviors were present within the surveyed households but that opportunities remain to strengthen their regular implementation. Previous research has emphasized the importance of household participation and environmental management in dengue prevention (Guad et al., 2021; Mahmud et al., 2023).

Among the two preparedness dimensions, EF obtained a higher mean (M = 2.89, SD = 0.89) than HRM (M = 2.72, SD = 0.91), although both were classified as moderate. This descriptive difference suggests that respondents reported somewhat more frequent engagement with the environmental aspects of preparedness than with household resource-management activities. The findings should not, however, be interpreted as demonstrating a statistically significant difference between the dimensions, as no inferential comparison was conducted.

HRM recorded the lower mean, indicating a potential area for strengthening household-level preparedness. Activities related to the management of water containers, household materials, and routine sanitation are particularly relevant because improperly maintained domestic environments may provide mosquito breeding opportunities. Mahmud et al. (2023) highlighted the role of environmental management in dengue control, supporting the importance of integrating household resource-management activities into sustained prevention efforts.

The moderate scores across both dimensions suggest that dengue preparedness initiatives should address household practices alongside environmental conditions. For community health nursing, these findings support continued household education, practical guidance on resource management, and coordination with barangay-level environmental sanitation activities. Such measures may help address inconsistently implemented preparedness practices, although their effectiveness would require evaluation through subsequent intervention research.

Moreover, Table 2 presents the respondents' reported levels of DPP across MBP, MCM, and DTP.

Table 2. *Level of Dengue Prevention Practices*

Indicators	Mean	SD	Interpretation
Mosquito Breeding Prevention	2.92	0.89	Moderate
Mosquito Control Measures	2.74	0.98	Moderate
Dengue Transmission Prevention	2.88	0.87	Moderate
Overall	**2.85**	**0.91**	**Moderate**

Note. *3.26–4.00 = High; 2.51–3.25 = Moderate; 1.76–2.50 = Low; 1.00–1.75 = Very Low. SD = Standard Deviation.*

The overall level of DPP was moderate (M = 2.85, SD = 0.91), indicating that respondents engaged in dengue prevention activities but did not report consistently high levels of implementation. This finding suggests that preventive behaviors were present among the surveyed households, although their frequency varied. Chng et al. (2022), in a cross-sectional study involving residents of dengue-sustained and non-sustained hotspots in Singapore, identified variations in dengue prevention practices and factors associated with residence in sustained transmission hotspots. Although the study populations and measures differed, their findings underscore the importance of examining preventive practices within specific community contexts rather than assuming that dengue awareness translates uniformly into household action.

Among the three dimensions, MBP obtained the highest mean (M = 2.92, SD = 0.89), although it remained within the moderate category. This suggests comparatively more frequent engagement in activities intended to reduce potential mosquito breeding sites, including the removal of stagnant water, maintenance of water containers, and disposal of materials that collect rainwater. Montenegro-Quiñonez et al. (2023), in a systematic review and meta-analysis of household-level interventions against Aedes mosquitoes and dengue, examined structural housing and vector-control measures, highlighting the importance of household environments as intervention settings. The relatively higher MBP score in the present study may indicate that breeding-site prevention is more readily incorporated into household routines, although the reasons for differences across prevention domains were not directly investigated.

DTP obtained a mean of 2.88 (SD = 0.87), likewise indicating moderate implementation. Its proximity to the MBP mean suggests broadly comparable reported frequencies, although no inferential test was conducted to establish whether the difference was statistically significant. Phuyal et al. (2022), in their investigation of dengue-related knowledge, attitudes, and practices in Central Nepal, demonstrated the relevance of examining preventive behaviors alongside community knowledge and attitudes. In the present study, the moderate DTP score indicates that transmission-prevention activities were undertaken but not consistently reported at the highest frequency. This finding supports the need to distinguish between awareness of recommended measures and their routine implementation.

MCM recorded the lowest mean (M = 2.74, SD = 0.98) and the greatest variability among the prevention-practice dimensions, indicating comparatively less frequent implementation and greater heterogeneity in reported mosquito-control activities. Tan et al. (2024), in their investigation of integrated vector-control strategies and services of barangay health stations in Manila, examined the implementation of dengue-control activities within the Philippine community health system. Their work provides a relevant institutional perspective for considering how household mosquito-control practices may be supported through local health services. In the present study, the lower MCM score may reflect practical challenges involving access to protective materials, recurring expenditures, or household routines, although these factors were not independently measured. The finding therefore identifies mosquito-control practices as an area warranting further assessment and coordinated household- and barangay-level interventions.
Table 3 presents the relationships between HDP and DPP, including the associations of the two preparedness dimensions with the overall prevention-practice score.

Table 3. *Relationship Between Household Dengue Preparedness and Prevention Practices*

Household Dengue Preparedness	Pearson's r	p-value	Decision	Interpretation
Household Resource Management	0.822	< .001	Reject H_{01}	Significant
Environmental Factors	0.838	< .001	Reject H_{01}	Significant
Overall Preparedness	**0.830**	**< .001**	**Reject H_{01}**	**Significant**

Note. Significance level α = .05. Pearson's r represents the correlation coefficient. The dependent variable is Prevention Practices.

Household dengue preparedness demonstrated a strong, positive, and statistically significant relationship with dengue prevention practices ($r = .830$, $p < .001$). Respondents who reported higher levels of preparedness also tended to report more frequent implementation of preventive activities. The finding supports rejection of the null hypothesis of no significant association between HDP and DPP. Nevertheless, the observed relationship should be interpreted as an association between reported behaviors rather than evidence that preparedness directly produces improvements in prevention practices.

Both preparedness dimensions were significantly associated with DPP. HRM demonstrated a strong positive correlation ($r = .822$, $p < .001$), suggesting that respondents reporting more frequent household resource-management activities also tended to report higher prevention-practice scores. EF exhibited a similarly strong association ($r = .838$, $p < .001$). These findings indicate that household resource management and environmental preparedness are closely related to reported dengue prevention behaviors. Although EF had a slightly higher correlation coefficient, the study did not establish whether the difference between the two correlations was statistically significant.

The observed relationships are relevant to previous investigations of dengue prevention in household and community settings. Singh and Chaturvedi (2024), in a study of dengue incidence in Delhi, identified household and environmental characteristics, including drainage and waste-management conditions, as important socio-ecological factors associated with dengue occurrence. In the Philippine context, Gregorio et al. (2024), in an analytic cross-sectional study among public school teachers in Pampanga, identified associations between dengue-related knowledge and protective practices against mosquito bites and mosquito breeding. Although these studies examined different explanatory variables and outcomes, they demonstrate the importance of considering household, environmental, and behavioral factors when investigating dengue prevention.

The magnitude of the correlations also warrants methodological consideration. HDP and DPP were assessed using self-reported responses from the same questionnaire, creating the possibility of common-method variance. Furthermore, some preparedness and prevention items may represent conceptually related activities, potentially contributing to the strength of the observed associations. The findings therefore establish strong statistical relationships within the study sample but do not demonstrate causality or establish that the same relationships would necessarily be observed in other communities. Future investigations incorporating direct household observations and independently assessed environmental conditions could provide a more comprehensive understanding of these associations.

Table 4. *Multiple Linear Regression of Household Dengue Preparedness Dimensions Predicting Prevention Practices (n = 120)*

Predictor	B	SE	β	t	p-value	95% CI for B
Constant	0.336	0.129	—	2.610	.010	[0.081, 0.590]
Household Resource Management	0.410	0.066	0.431	6.181	< .001	[0.278, 0.541]
Environmental Factors	0.483	0.067	0.502	7.199	< .001	[0.350, 0.616]

Note: *B = Unstandardized Regression Coefficient; SE = Standard Error; β = Standardized Regression Coefficient; CI = Confidence Interval. Model $F = 202.410$, $p < .001$; adjusted $R^2 = .772$.*

The multiple linear regression model was statistically significant, $F(2, 117) = 202.410$, $p < .001$, with an adjusted R^2 of .772. This indicates that HRM and EF collectively explained approximately 77.2% of the variance in reported DPP scores after adjustment for the number of predictors. The substantial explanatory capacity of the

model suggests that household resource management and environmental preparedness are closely associated with differences in reported dengue prevention practices among the respondents. However, the explained variance pertains to the fitted model and should not be interpreted as evidence of predictive accuracy in other populations.

HRM was a significant positive predictor of DPP (B = 0.410, SE = 0.066, β = .431, t = 6.181, p < .001, 95% CI [0.278, 0.541]). Holding EF constant, each one-unit increase in HRM was associated with an estimated 0.410-unit increase in the predicted DPP score. This finding indicates that household resource-management activities contributed statistical information about prevention practices beyond that accounted for by EF. The result is relevant to the systematic review by Ruhardi et al. (2024), which examined waste management and dengue prevention through an integrated behavioral model. Their review highlighted the relationship between environmental management and dengue-related preventive behavior, providing a broader behavioral context for interpreting the contribution of HRM in the present study.

EF was likewise a significant positive predictor (B = 0.483, SE = 0.067, β = .502, t = 7.199, p < .001, 95% CI [0.350, 0.616]). Holding HRM constant, each one-unit increase in EF was associated with an estimated 0.483-unit increase in the predicted DPP score. Its standardized coefficient was larger than that of HRM, indicating a greater relative contribution within the fitted model. This finding highlights the relevance of environmental preparedness when examining differences in reported prevention practices. Nevertheless, the difference between the standardized coefficients was not formally tested and should not be interpreted as establishing the statistical superiority of EF over HRM.

The findings have implications for community-based dengue prevention, particularly where household practices depend on environmental conditions and collective action. Arfan et al. (2024), in their systematic review of community participation in dengue control, identified benefits associated with community engagement alongside individual, community, and broader societal barriers to participation. Their findings suggest that household-focused interventions may require support from community structures to sustain preventive activities. In the present setting, community health nursing initiatives may therefore consider integrating household resource-management education with environmental assessments and coordinated barangay-level prevention activities.

Although both predictors were statistically significant, the findings require cautious interpretation. HDP and DPP were measured through the same self-reported questionnaire, raising the possibility of common-method variance and conceptual overlap between predictor and outcome measures. Furthermore, the cross-sectional design does not establish temporal precedence or causation, and the manuscript does not report regression diagnostic results or external model validation. Accordingly, the findings support rejection of the null hypothesis of no predictive relationship within the study sample, but they do not demonstrate that changing either preparedness dimension would necessarily improve prevention practices. Further research using longitudinal designs, independent environmental observations, and validation in other communities would help determine the robustness and practical applicability of the model.

CONCLUSION

The study found moderate levels of HDP and DPP among adult residents of Barangays Poblacion and Singao, Kidapawan City. Among the preparedness dimensions, EF obtained a higher mean than HRM, while MCM recorded the lowest mean among the three DPP dimensions. These findings indicate that although respondents reported engaging in household and environmental dengue prevention activities, their implementation had not reached consistently high levels. The comparatively lower scores for HRM and MCM identify areas that warrant greater attention in community-based prevention initiatives.

HDP demonstrated a strong, positive, and statistically significant association with DPP. Both HRM and EF were significant predictors of reported prevention practices, with EF exhibiting the larger standardized regression coefficient. The model accounted for approximately 77.2% of the adjusted variance in DPP scores, indicating that the two preparedness dimensions were closely associated with reported preventive behaviors. Nevertheless,

the cross-sectional design and reliance on self-reported measures limit causal interpretation, while possible conceptual overlap between the variables warrants consideration when interpreting the strength of these relationships.

The findings highlight the importance of integrating household preparedness with environmental management in dengue prevention programs. For community health nursing, this underscores the value of sustained household education, environmental risk assessment, and coordinated barangay-level activities that encourage consistent preventive practices. Particular attention may be directed toward strengthening HRM and MCM, while promoting community participation in sanitation, waste management, and mosquito breeding-site reduction. Such approaches may help inform locally responsive dengue prevention initiatives in communities experiencing recurrent outbreaks.

ACKNOWLEDGMENT

This thesis would not have been accomplished without the invaluable guidance, assistance, and support of numerous individuals. The researcher sincerely extends heartfelt gratitude to:

To my adviser, Jainah Rose G. Amilbahar, PhD, for her patience, and guidance; and Marc Andreo C. Malala, RN, MAN, the research statistician, for his technical assistance.

The panel of examiners, Christine M. Fiel, PhD, Christian Vincent Galolo, MAEd, and Erlyn Jessie D. Dy, PhD, for their constructive suggestions that enhanced the quality of this study.

The respondents from Barangay Singao and Barangay Poblacion, Kidapawan City, for generously sharing their time and participating in the study.

To Maria Imelda D. Pineda, RN, USRN, MN, E.Ed, Dean of the Paramedical Department of Colegio de Kidapawan, for her encouragement.

The researcher's family, Anacheta A. Jamito and Dra. Ma. Isabel A. Jamito, for their unwavering belief in the researcher. Friends, Klyde, Ida, Lorraine, Arjay, Aerold, Phoebe, MC, and classmates, especially Amy, and Mary, for their support.

Above all, Almighty God, the Heavenly Father, for His grace, wisdom, strength, and guidance in overcoming every challenge and completing this academic pursuit. To Him be all the glory and praise.

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