

ปัจจัยที่สัมพันธ์กับพฤติกรรมป้องกันไข้เลือดออกในมารดาที่มีลูกน้อยกว่าห้าคน ในหมู่บ้านโคโมโร ดิลี ทิมอร์-เลสเต

Factors Related to Dengue Prevention Behaviors Among Mothers of Under Five Children in Comoro Village, Dili Timor-Leste

นิพนธ์ต้นฉบับ

Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาระดับพฤติกรรมป้องกันโรคไข้เลือดออกและความสัมพันธ์ระหว่างพฤติกรรมกับปัจจัยที่อาจมีผลต่อพฤติกรรม ในมารดาที่มีบุตรไม่เกินห้าคน **วิธีการศึกษา:** การศึกษาความสัมพันธ์ในมารดา 240 คนที่มีลูกน้อยกว่าห้าคน ในหมู่บ้านโคโมโร ดิลี ทิมอร์-เลสเต เลือกโดยการสุ่มแบบกลุ่มอย่างง่าย เครื่องมือมีแบบบันทึกลักษณะทางประชากรศาสตร์ แบบประเมิน 1) ความรู้เกี่ยวกับไข้เลือดออก, การรับรู้โอกาสเกิดโรค การรับรู้ความรุนแรงของโรค, การรับรู้ประโยชน์, การรับรู้อุปสรรค, ความเชื่อมั่นแห่งตน และพฤติกรรมป้องกันโรคไข้เลือดออก ทดสอบความสัมพันธ์ด้วยค่าสหสัมพันธ์ของเพียร์สัน **ผลการศึกษา:** มากกว่าครึ่งของมารดามีพฤติกรรมป้องกันโรคไข้เลือดออกระดับต่ำ (53%) พบว่าความรู้เกี่ยวกับไข้เลือดออก ($r = .206, p < .01$), การรับรู้ความรุนแรงของโรค ($r = .172, p < .01$), การรับรู้ประโยชน์ ($r = .196, p < .01$) และความเชื่อมั่นแห่งตน ($r = .209, p < .01$) มีความสัมพันธ์กับพฤติกรรมป้องกันไข้เลือดออกอย่างมีนัยสำคัญทางสถิติ แต่การรับรู้โอกาสเกิดโรค ($r = -.056, p > .05$) และการรับรู้อุปสรรค ($r = .013, p > .05$) ไม่พบความสัมพันธ์ที่มีนัยสำคัญทางสถิติกับพฤติกรรมป้องกันไข้เลือดออก **สรุป:** ผลการศึกษานี้แนะนำว่าความจำเป็นต้องเพิ่มพฤติกรรมป้องกันไข้เลือดออกในมารดาที่มีบุตรน้อยกว่าห้าคน

คำสำคัญ: พฤติกรรมป้องกันโรคไข้เลือดออก; ความรู้เกี่ยวกับไข้เลือดออก, การรับรู้โอกาสเกิดโรค การรับรู้ความรุนแรงของโรค, การรับรู้ประโยชน์, การรับรู้อุปสรรค, ความเชื่อมั่นแห่งตน

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Abstract

Objective: To determine dengue prevention behavior and the associations with its influencing factors mothers of under five children. **Methods:** This correlation study was conducted among 240 mothers of under five children in Comoro village, Dili Timor Leste by simple cluster random sampling. Seven validated instruments were used to collect mother's data; a demographic record form, knowledge regarding dengue questionnaire, perceived susceptibility questionnaire, perceived severity questionnaire, perceived benefits questionnaire, perceived barriers questionnaire, self-efficacy questionnaire, and dengue prevention behaviors questionnaire. The data were analyzed using descriptive statistics and Pearson's correlation analysis.

Results: More than half of the participants had poor dengue prevention behaviors (53%). It was found that knowledge regarding dengue ($r = .206, p < .01$), perceived severity ($r = .172, p < .01$), perceived benefit ($r = .196, p < .01$) and self-efficacy ($r = .209, p < .01$) showed statistically significant correlation with dengue prevention behaviors while perceived susceptibility ($r = -.056, p > .05$) and perceived barrier ($r = .013, p > .05$) showed no statistically significant correlation with dengue prevention behaviors.

Conclusion: The findings highlighted there is an urgent need that could focus to enhance dengue prevention behaviors among mothers of under five children.

Keywords: dengue prevention behaviors; knowledge regarding dengue; perceived susceptibility; perceived severity; perceived benefits; perceived barriers; self-efficacy

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Introduction

Dengue has become a significant issue for approximately half of the Global population, with an estimated 100-400 million infections occurring each year. In tropical and subtropical regions, dengue is a serious public health concern.¹ Children, particularly those under the age of five, are at greater risk of severe dengue illness. In addition, under five children have the greatest rate of mortality worldwide.²

Timor Leste is a small Country in Southeast Asia and considered a tropical Country. Due to its hot and humid

climate the conditions in Timor Leste allow the occurrence of various mosquito borne diseases, including dengue, as endemic disease. Dengue has been reported predominantly in children age group in Timor-Leste. Age group of 1-4 years and age group of 5-14 years, respectively.³ In 2020 and 2021 National Institute of Public Health reported an outbreak in Timor-Leste, when 1451 dengue cases with 10 deaths and 901 cases with 11 deaths were reported, respectively in both the years. In 2022 reported an unusually high level compared

to previous years, 5658 dengue cases with 58 deaths with the case fatality rate has been reported as 1.0. In 2023 reported 1953 cases and 7 deaths and in 2024 reported 1106 cases and 8 deaths (only from January 1st to April 26th, 2024).³

The Capital of Timor Leste, Dili has emerged as the city most severely impacted by dengue in the country. Comoro is a village in Dom Aleixo administrative post located in a little west of Dili and has a higher population than other villages and reported highest number of dengue cases than other Village in Dili Municipality.⁴ As there are no specific antiviral agents for dengue and vaccines for dengue are unavailable in Timor Leste, efforts must be made to reduce risk factors that can be fatal, especially for the children. Many efforts from Timor Leste Ministry of Health for dengue prevention and control activities include mass media messages, abate sand distribution and mosquito fogging. However, the Country's annual incidence of dengue infection is continuing to rise with some factors that related to people's preventive behaviors.

Previous studies have revealed dengue preventive behaviors can be the most effective actions in dengue prevention and control to decrease the risk of dengue infection.^{5–7} Wearing protective clothing, use mosquito nets and coils, use mosquito repellents, covering well water storage containers, installing screens on doors and windows, disposing of containers or objects that can accumulate water and change the water in flower vases are all examples of prevention measures. In general, mother is the primary caregiver in the family and responds to her child's care and need. With their function as housewives in the family, mothers play an important role such as responsibility in caring for family members especially their children. Mungall-Baldwin stated mother is the primary human resource for household and community-based prevention, their participation can help to contribute in reducing dengue rates.⁸

One of the models that can predict health behavior towards dengue prevention is the Health Belief Model (HBM). Several factors have been postulated as contributing to dengue prevention behaviors. According to HBM, a person's commitment to a behavior that promotes health is determined by their beliefs of the benefits and risks of the behavior, the severity of the health issue, their possibility of getting the disease, and other factors.⁷ The concept of HBM addressed in this study include modifying factor such as knowledge (structural variables) and other main component of HBM;

perceived susceptibility, perceived severity, perceived benefit, perceived barrier and self-efficacy.

For the purpose of improving dengue prevention and designing sustainable public health interventions, it is essential to recognize and understand the factors that associated with dengue prevention behavior among mothers. Some studies have been conducted in Timor Leste regarding dengue, however these only focus on dengue infected people, variables related to laboratory indexes and based on epidemiological approach. Additionally, there are limited studies conducted in the Community regarding dengue prevention behaviors. Thus, this present study aims to describe dengue prevention behaviors among mothers of under five children and to examine factors associated with dengue prevention behaviors among mothers of under five children.

Methods

A cross-sectional research was conducted to describe dengue prevention behaviors among mothers of under five children and to examine factors associated with dengue prevention behaviors among mothers of under five children. The study population was mothers of under five children in Comoro village, Dili Timor Leste. The data were collected from February to March 2024. Participants were recruited using a simple cluster random sampling technique. Comoro Village divided into 14 hamlets; 3 hamlets were selected in this study; Fomento São José and Aimutin. To be eligible, mothers of under five children had to 1) be 18 years or older 2) be a biological mother of under five children 3) no history of mental disorders and 4) be able to read, communicate and understand in Tetum language. Sample size estimation was calculated by using rule of thumb calculation. According to Riley and colleagues stated events per candidate predictor parameter below 10 or increasing it to 15, 20, or even 50.⁹ For this study the researcher used EPP = 40, which can increase the generalizability to the larger population. There were 6 numbers of factors in this study. Therefore, sample size from calculation was 240 samples.

Research Instrument

Demographic record form includes age, education level, marital status, occupation, family income, number of family member, and number of under five children. information

regarding dengue including source of information regarding dengue, history of dengue, house flooded when rainy season, standing water in the water containers and use of mosquito net. Knowledge regarding dengue questionnaire developed by Dhimal and colleagues, was used to measure knowledge of symptoms and knowledge of transmission.¹⁰ It contains 24 items, each right answer accounts for 1 point, while a wrong or unsure answer is given 0 point. The higher score indicates to higher knowledge. The Cronbach alpha value in this pilot study was .84.

Perceived susceptibility questionnaire developed by Mashudi and colleagues.⁷ The questionnaire contained six items that examined the respondents' perception of the risk of getting dengue using a four-point Likert scale ranging from "strongly disagree" (1) to "Strongly agree" (4) with a total score range of 6–24. Four items (1,2,3,4) had a reverse coding in this construct. Higher scores indicate higher perceived severity. The Cronbach alpha value from this pilot study was .75.

Perceived severity questionnaire developed by Mashudi and colleagues.⁷ The questionnaire contained 6 items that examine the respondents' feelings towards the seriousness of dengue using a four-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (4) with a total score range of 6–24. Higher scores indicate higher perceived severity. The Cronbach alpha value from this pilot study was .65.

Perceived benefits questionnaire developed by Mashudi and colleagues.⁷ The questionnaire consisted of five items rated using a four-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (4) with a total score range of 5–20. Higher scores indicate higher perceived benefit. The Cronbach alpha value from this pilot study was .96.

Perceived barrier questionnaire developed by Mashudi and colleagues.⁷ this questionnaire also used a four-point Likert scale to answer six questions on barriers in performing dengue prevention practice using a four-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (4) with a total score range of 6–24. Higher scores indicate higher perceived barrier. The Cronbach alpha value from this pilot study was .74.

Self-efficacy questionnaire developed by Isa and colleagues, consisted of level and strength of self-efficacy.¹¹ However, in this study only strength of self-efficacy was used. Strength of self-efficacy contained 10 items. Strength of self-

efficacy was measured using Likert scales from 1 (not at all confident) to 10 (extremely confident). Each scale has possible scores ranging from 10 – 100. The higher score indicates the higher level of confident. The Cronbach alpha value from this pilot study was .96.

Dengue prevention behaviors questionnaire developed by Mashudi and colleagues.⁷ The dengue preventive practices measure consisted of prevention of mosquito breeding, prevention of mosquito bites and prevention of dengue transmission. Contained of 15 items on a five-point Likert scale, i.e., "never", "rarely", "sometimes", "usually", and "always", with scores "1" to "5", respectively. The higher scores indicate the high level of dengue prevention behavior. The Cronbach alpha value from this pilot study was .80.

Human subject protection and data collection procedures

This study was approved by the Ethical institutional review board of the Burapha University (G- HS104/2566) and the IRB committee from Institute National of Public Health Timor Leste (INSPTL) with referral number was 57/INSP-TL/UEPD/XII/2023. The data collection process began only after got the permission from authority of the setting (Local Authority of Comoro Village) to collect data in the Comoro Village setting. While households of under five children were being registered from the Comoro Community Health Center, based on participant's address and contact number, the researcher started to visit eligible house for data collection. The researcher informed the participants about the aims of the study and human protection of the study. The voluntary nature of participation was also explained. After completing the process of obtaining consents, the researcher distributed the questionnaire to participants. The participants completed the questionnaire freely and it took 15-20 minutes to complete the whole set of questionnaires. The obtained data were strictly kept confidential.

Data analysis

The descriptive statistics were used to describe frequencies, percentages, means and standard deviations of the participants 3 demographic data and variables. Pearson's product moment correlation analysis was used to examine the relationship between knowledge regarding dengue, perceived susceptibility, perceived severity,

perceived benefits, perceived barriers, self-efficacy and dengue prevention behaviors. All data were analyzed by using software statistical package for social science (SPSS 26.0). The level of significance was set as .05.

Results

Among the 240 participants, mothers of under-five children age ranged from 18-43 years old with an average age of 31.63 years old (SD = 6.13). Almost half of the participants completed secondary high school (50.0%), followed by Bachelor's degree and higher level (25.8). The majority of participants were married (97.1%), housewives (75.8%), monthly income between USD 100.00 - 500.00 (89.0%), one of under-five children in their family (61.7%), and less than five number of family member (72.5%) (Table 1).

Table 1 Demographic characteristics of participants (N = 240).

Characteristics	(N)	(%)
Age (years) (M = 31.63, SD = 6.13, Min = 18, Max = 43)		
18-24	30	12.5
25-34	133	55.4
≥ 35	77	32.1
Education level (years) M = 11.87, SD = 3.24, Min = 0, Max = 16)		
Illiterate	1	0.4
Primary school	32	13.3
Junior high school	25	10.4
Secondary high school	120	50.0
Bachelor's degree and higher	62	25.8
Marital status		
Single/divorced	4	1.7
Married	233	97.1
Widowed	3	1.3
Occupation		
Public Servant/Government	23	9.6
Non-Government worker	13	5.4
Housewife	182	75.8
Merchant	12	5.0
Other (specify)	10	4.2
Monthly family income (n = 91), M = 223.63, SD = 129.50, Min = 15, Max = 675)		
< USD 100.00	7	7.7
USD 100.00 -500.00	81	89.0
> USD 500.00	3	3.3
Number of under-five children in the family (M = 1.55, SD = .78, Min = 1, Max = 4)		
1	148	61.7
2	63	26.3
3	25	10.4
4	4	1.6
Number of family Member (M = 4.86, SD = 2.15, Min = 1, Max = 14)		
<5	174	72.5
5-10	61	25.4
>10	5	2.1

The majority of participants received information regarding dengue from health professionals (77.9%), no history of dengue (85.8%) and had no standing water in the containers

at home (80.8%). More than half of the participants use mosquito nets (58.8%) while 41.3% do not use mosquito nets to prevent mosquito bites while sleeping (Table 2).

Table 2 Information regarding dengue (N = 240).

Information	(N)	(%)
Source of information regarding dengue		
Health Professionals	187	77.9
T.V., Radio, Posters	45	18.8
Friends/neighbors/family	8	3.3
History of dengue		
No history	206	85.8
1 time	23	9.6
2 times	11	4.6
Yearly house flooded		
Yes	68	28.3
No	172	71.7
Having standing water at home		
Yes	46	19.2
No	194	80.8
Using mosquito nets		
Yes	141	58.8
No	99	41.3

More than half of the participants performed poor practice of dengue prevention behaviors (53%). The maximum score for dengue prevention practice was 75 and the minimum score was 15 with a mean score of 58.28. The overall score of knowledge regarding dengue ranged from 4 to 24 and the mean score was 14.84 out of 24 (SD = 4.73) categorized as low-level knowledge regarding dengue.

For the perceived susceptibility, the mean score was 15.58 (actual score: 10-21, SD = 1.91) which indicated low level of perceived susceptibility. The overall score of perceived severity ranged from 6 to 20, with a mean score of 16.36 (SD = 2.57) which indicated low perceived severity. The perceived benefit of the participants ranged from 5 to 20 with a mean score of 14.98 (SD = 2.36) which is categorized as low level of perceived benefit. The overall score of perceived barriers of participants ranged from 6 to 21 and the mean score was 13.04 (SD = 2.70) which indicated as low level of perceived barrier. The mean score of self-efficacy was 81.17 (SD = 18.94) from actual score ranged from 16 to 100.

It was found that four selected variables had significant correlation with dengue prevention behaviors as follows: knowledge regarding dengue ($r = .206, p < .01$), perceived severity ($r = .172, p < .01$), perceived benefit ($r = .196, p < .01$) and self-efficacy ($r = .209, p < .01$) except the perceived

susceptibility ($r = -.056$, $p > .05$) and perceived barrier ($r = .013$, $p > .05$) that showed no statistically significant correlation with dengue prevention behaviors (Table 3).

3 **Table 3** Correlation among the variables (N = 240).

	Dengue prevention behaviors
Knowledge regarding dengue	.206**
Perceived susceptibility	-.056
Perceived severity	.172**
Perceived benefit	.196**
Perceived barrier	.013
Self-efficacy	.209**

** $p < 0.01$.

Discussions and Conclusion

This present study indicated more than half of the participants performed poor practice of dengue prevention behaviors (53%). The maximum score for dengue prevention practice was 75 and the minimum score was 15 with a mean score of 58.28 which indicated that mothers of under five children in Comoro Village had poor practice of dengue prevention behaviors. From the finding in this study, majority of participants rated low score in participate in any dengue infection campaign in their residential area, inadequate behavior of use of mosquito repellent in their house, inadequate behavior to check the presence of mosquito larvae in the water storage container in their house with the mean score were 2.73 (SD = 1.48), 3.59 (SD = 1.33) and 3.78 (SD = 1.19) respectively. However, majority of the participants rated high score to see the doctor if they experience signs and symptoms of dengue fever was 4.49 (SD = .99). This finding consistent with cross-sectional mixed method study from Nepal revealed that insufficient preventive practice in both highland and lowland communities of Nepal.¹² Another similar finding from Malang, Indonesia has shown that only 3.2% of respondents had good level of prevention behavior, and 35.8% needed to improve their prevention behavior.¹³ In this current finding, knowledge regarding dengue showed statistically significant correlation with dengue prevention behaviors ($r = .206$, $p < .01$), which means that mothers of under five children with better knowledge regarding dengue had higher scores of dengue prevention behaviors. Consistently, knowledge regarding dengue has significant positive correlations with dengue prevention behaviors.¹⁴ Other studies also stated that knowledge of dengue was

associated with practice towards dengue.^{15–17} In terms of health belief Model, knowledge is one of the modifying factors (structural variables) in the Health Belief Model that can indirectly affect by influencing the perception of susceptibility, severity, benefit, and barrier health-related behaviors.¹⁸ This study finding presented the mean score of participants knowledge regarding dengue 14.84 out of possible score 24 (SD = 4.73) categorized as low-level knowledge regarding dengue, which means the participants had no adequate knowledge regarding dengue and it could be one possible reason for the poor dengue prevention behaviors. In addition, some participants in this study had lack of knowledge about dengue typical symptoms, such as joint pain, headache, vomiting, stomach discomfort and diarrhea. One possible cause might be due to dengue typical symptoms might be easily confused with other common causes of fever, such as chikungunya (notified in Timor Leste, 2023) and influenza.¹⁹

The results of this study indicated that perceived susceptibility was not correlated with dengue prevention behavior ($r = -.056$, $p > .01$). As mentioned in Health Belief Model, perceived susceptibility as one aspect that can impact individual's decisions to take action.^{20,21} In this current study, the mean score of perceived susceptibility was 15.58 out of possible score of 24 (SD = 1.94) which indicated low perceived susceptibility. This finding was similar to a previous study from China indicated only one third of the participants (30.1%, 78/259) indicated the perceived susceptibility of dengue fever.²² This finding also aligns with a study from Malaysia indicated participants with lower perceived susceptibility (level of susceptibility 1–5) was less likely (OR = 0.54) to perform dengue prevention practices compared with those with the reference level of susceptibility (level 6–10).²³ This could be because the majority of mothers are not aware of the dangers of dengue and have no experienced it for themselves or their family member.²³ The results of this study indicated that perceived severity was correlated with dengue prevention behaviors ($r = .172$, $p = .009$). However, it was inconsistent to a study from Pakistan indicated assessed perceived severity and perceived susceptibility as perceived threat stated higher scores for perceived threat (OR = 1.502; 95% CI = 1.02–2.19; $p = 0.036$) were associated with higher (2-fold) odds of dengue preventive practices.²⁴ An experimental study from Taiwan, the study that aims to understand the effectiveness of health education intervention

(HEI) for Filipino migrant workers in Taiwan and explores the factors affecting preventive practices of mosquito borne diseases stated that perceived severity ($\beta = .24, p < .01$) was the factor that drove migrant workers to adopt preventive practices.²⁵

According to Health belief Model concept, people are more inclined to adopt preventive measures to keep themselves safe if they understand how serious the disease is.²⁰ Related to this study findings, the mean score of the participant's perceived severity was 16.³⁶ out of possible score of 24 (SD = 2.89) which indicated low perceived severity. This may due to people's health beliefs rather than the amount of time they spent at home.⁷ Another possible reason in this study might be due to traditional beliefs among Timorese people may reduce people perceived susceptibility and severity to dengue fever.²²

The results of this study indicated that there was correlation between perceived benefit and dengue prevention behaviors ($r = .196, p < .01$). The result of this study was in accordance with a previous study from Malaysia that revealed high perceived benefit was significantly associated with a good level of dengue preventive ($p < 0.05$).⁸ Based on Health Belief Model, perceived benefit refers to individual's perception of the necessity or usefulness of preventative measures in reducing the risk of illness. The individual must feel that the chosen activity will lead to significant positive results. In this study finding has shown that the mean score of participants perceived benefit was 14.98 out of 20 (SD = 2.36) which indicated as low level of perceived benefit that can contribute to poor dengue prevention behaviors.

The current result presented that perceived barrier was not significantly correlated with dengue prevention behaviors ($r = .007, p > .01$). According to Rosenstock and Lennon stated perceived barriers refer to any obstacles to adopting preventative behavior that may discourage adoption of that behavior.^{20,21} Beliefs about the costs (psychological or material) such as perceived not enough time to reduce mosquitoes breeding sites can limit a person to perform necessary preventive behaviors. The result of this study was not consistent with previous studies which stated that low perceived barriers to prevent dengue (score of 1–5) were more likely (OR = 2.06, 95%CI = 1.21–3.53, vs. score of 6–10, $P = 0.008$) to practice dengue prevention.²³ As mentioned on Health belief Model, in situations where an individual views

preventive behavior as more effective than barriers (perceived benefit minus perceived barrier), that will lead to begin implementing preventive measures. Beliefs about the costs (psychological or material) such as perceived not enough time to reduce mosquitoes breeding sites can limit a person to perform necessary preventive behaviors. The possible reason for this inconsistent might be due to poor health belief of the population in this study and differences health perception may affect them to perform disease prevention. It also might be due to environmental factors that preventing an individual from practicing the desired behaviors such as densely populated area, bad waste management, lack of sufficient water supply can limit individuals' willingness to adopt dengue prevention practices.²⁴

Self-efficacy was also the variable that had correlation with dengue prevention behaviors ($r = .209, p < .01$). The mean score of self-efficacies in this study was 81.17 out of possible score of 100. A Similar study from Malaysia stated self-efficacy was link to dengue prevention behaviors.⁷ Bandura noted perceived self-efficacy can influence a person's behavior.²⁵ Additionally, Mashudi and colleagues also stated self-efficacy is the key important in the HBM that can encourage individual to perform prevention measures.⁷ The concept of perceived self-efficacy refers to people's perception of their ability to plan and execute specific behaviors in various situations. "Self-efficacy" about people's ability that influence their behavior: expectations of personal efficacy determine whether coping behaviors will be initiated, how much effort will be expended, and how long they will be sustained despite obstacles.²⁶

In conclusion, our present study revealed that participants had poor dengue prevention behaviors, insufficient knowledge regarding dengue, low perceived susceptibility, perceived severity, perceived benefit, high perceived barrier and sufficient self-efficacy. Significantly, results from the study revealed that most of the mothers of under five children in Comoro, Dili Municipality do not perform better dengue prevention behaviors and it still can contribute to high morbidity and mortality of dengue cases especially for their children. Therefore, relevant interventions are urgently needed for mother of under five children to enhance their dengue prevention behaviors. Based on our study findings, this study documented dengue preventive practices at the household level among mothers as primary caregiver where dengue is

growing concern. Hence, nurses can use the results of this research to develop better planning specific health intervention strategies in the future in order to enhance dengue prevention behaviors in the Community.

There are some limitations in this study such as the HBM does not account for environmental factors that may prevent an individual from practicing the desired behaviors. For example, inadequate infrastructure, poor sanitation, and a poor water supply may make it more difficult for a person to implement dengue preventative activities. Furthermore, the use of a self-reported questionnaire in this study may cause social desirability bias. For further study, recommendations include a similar study should be conducted elsewhere in Timor Leste to corroborate these findings. Secondly, another research that focus on other variables to see other factors that have association with dengue prevention behaviors in Timor Leste. Thirdly, other tools need to be developed in Tetum version which may fit to Timor Leste context and lastly suggested intervention research incorporating the finding for this study should be carried out to the community to increase dengue prevention behaviors.

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