

Perception-Driven Prevention: A Health Belief Model Implementation to Dengue Fever Control in Jepara, Central Java, Indonesia

Ahmad Daffa' Aushof¹⁾, Setyo Sri Rahardjo²⁾, Bhisma Murti¹⁾,
Argyo Demartoto³⁾, Revi Gama Hatta Novika¹⁾

¹⁾Master's Program in Public Health, Universitas Sebelas Maret

²⁾ Faculty of Medicine, Universitas Sebelas Maret

³⁾Faculty of Social and Political Sciences, Universitas Sebelas Maret

Received: 10 June 2025; Accepted: 28 June 2025; Available online: 16 July 2025

ABSTRACT

Background: Dengue fever is an infectious disease caused by the dengue virus and transmitted through the bites of *Aedes aegypti* and *Aedes albopictus* mosquitoes. The disease continues to pose a major public health challenge, particularly in tropical and subtropical regions, including Indonesia. This study aims to examine the Health Belief Model in relation to dengue prevention behaviors and the incidence of dengue fever in Jepara District, Central Java.

Subjects and Method: This was a cross-sectional study conducted in Jepara District, Central Java, in January 2025. A sample of 200 respondents was selected using the fixed disease sampling method, all of whom were residents of Jepara District. The dependent variable was dengue prevention behavior. Independent variables included perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. The data were collected using a questionnaire and analyzed using multiple linear analysis.

Results: Dengue prevention behavior increased with higher perceived susceptibility ($b = 0.21$; 95% CI = 0.00 to 0.43; $p = 0.049$), perceived severity ($b = 0.29$; 95% CI = 0.01 to 0.57; $p = 0.044$), perceived benefits ($b = 0.33$; 95% CI = 0.03 to 0.63; $p = 0.030$), cues to action ($b = 0.19$; 95% CI = 0.01 to 0.37; $p = 0.042$), and self-efficacy ($b = 0.33$; 95% CI = 0.01 to 0.65; $p = 0.045$), while lower perceived barriers were associated with improved prevention behavior ($b = -0.18$; 95% CI = -0.36 to -0.01; $p = 0.045$).

Conclusion: The results of this study show that higher levels of perceived susceptibility, perceived severity, perceived benefits, cues to action, and self-efficacy, as well as lower perceived barriers, enhance dengue prevention behaviors.

Keywords: dengue fever, health belief model, dengue prevention behavior

Correspondence:

Setyo Sri Rahardjo. Faculty of Medicine, Universitas Sebelas Maret. Jl. Ir. Sutarmi 36A, Surakarta 57126, Central Java, Indonesia. Email: setyosri@staff.uns.ac.id..

Cite this as:

Aushof AD, Rahardjo SS, Murti B, Demartoto A, Novika RGH (2025). Perception-Driven Prevention: A Health Belief Model Implementation to Dengue Fever Control in Jepara, Central Java, Indonesia. J Health Promot Behav. 10(03): 345-353. <https://doi.org/10.26911/thejhp.2025.10.03.09>.



© Ahmad Daffa' Aushof. Published by Master's Program of Public Health, Universitas Sebelas Maret, Surakarta. This open-access article is distributed under the terms of the [Creative Commons Attribution 4.0 International \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/). Re-use is permitted for any purpose, provided attribution is given to the author and the source is cited.

BACKGROUND

Dengue fever is an acute febrile illness caused by the dengue virus (DENV). Ento-

mological and epidemiological information circulating in the community can increase awareness of dengue fever (Govindasamy et

al., 2024). The World Health Organization (WHO) reports that nearly 3.9 billion people are at risk of dengue infection, resulting in approximately 96 million symptomatic cases and 40,000 deaths every year worldwide. Five Southeast Asian countries—India, Indonesia, Myanmar, Sri Lanka, and Thailand—are among the 30 countries with the highest dengue burden (Zamzuri et al., 2022). Due to various factors contributing to dengue transmission, the lack of curative treatment, and the limited availability of safe and effective vaccines, affected countries continue to face significant challenges in controlling dengue fever.

In Indonesia, dengue fever was first identified in 1968 in Surabaya, infecting 58 individuals and resulting in 24 deaths. As of April 30, 2024, more than 7.6 million dengue cases have been reported to the WHO globally, including 3.4 million confirmed cases, over 16,000 severe cases, and more than 3,000 deaths (WHO, 2024). In Indonesia, up to the 35th epidemiological week of 2024, a total of 197,396 dengue cases were recorded, with 1,161 deaths. These cases were reported from 481 districts/cities across 36 provinces, while dengue-related deaths were reported in 250 districts/cities across 32 provinces. In Central Java, 12,838 dengue cases and 231 deaths were documented (Ministry of Health, 2024). Jepara District is noted as the area with the highest incidence of dengue fever in Central Java. In 2024, dengue cases in Jepara reached 407, with 20 reported deaths (Ministry of Health, 2024).

The Health Belief Model (HBM) views behavior as a function of individual knowledge and attitudes. The model is based on the premise that a person's awareness of perceived health threats, perceived benefits and barriers, and cues to action collectively

influence changes in preventive behavior (Yari et al., 2024). The structure of the HBM includes perceived susceptibility (the extent to which a person feels vulnerable to mosquito bites), perceived severity (the extent to which an individual assesses the seriousness and possible complications of dengue infection), perceived benefits (the extent to which a person values the benefits of preventive behaviors in reducing risk), perceived barriers (the extent to which a person evaluates obstacles to performing mosquito-bite prevention), self-efficacy (an individual's confidence in their ability to carry out preventive actions), and cues to action (triggers that motivate individuals to engage in mosquito-bite prevention). This study aims to analyze the application of the Health Belief Model in dengue prevention behaviors and the incidence of dengue fever in Jepara District, Central Java.

SUBJECTS AND METHOD

1. Study Design

The research design employed in this study was an observational analytic study with a cross-sectional approach. The study was conducted in Jepara District, Central Java, in January 2025.

2. Population and Sample

The study population consisted of residents of Jepara District, Central Java, and the research sample included 200 individuals. Of these, 50 had a history of dengue fever, while 150 had never experienced dengue fever. The sample was selected using the fixed disease sampling method (Rothman et al., 2008; Schlesselman, 1982).

3. Study Variables

The dependent variable in this study was dengue prevention behavior, while the independent variables were the constructs of the Health Belief Model, namely perceived susceptibility, perceived severity, per-

ceived benefits, perceived barriers, cues to action, and self-efficacy.

4. Operational Definition of Variables
Dengue Prevention Behavior refers to actions undertaken to protect oneself from dengue fever.

Perceived Susceptibility is the evaluation of the likelihood of contracting a disease or experiencing an undesirable outcome (Alyafei and Carr, 2024).

Perceived Severity refers to an individual's understanding of the seriousness of a disease, condition, or negative outcome, and what may occur if no additional action is taken (Alyafei and Carr, 2024).

Perceived Benefits describe the extent to which various available actions are considered effective in reducing the risk of disease (Alyafei and Carr, 2024).

Perceived Barriers are obstacles that impede individuals from performing recommended health actions, which may prevent them from carrying out the recommended behaviors (Alyafei and Carr, 2024).

Cues to Action are stimuli that trigger the decision-making process to adopt recommended health interventions (Alyafei and Carr, 2024).

Self-Efficacy refers to an individual's belief in their ability to effectively perform a specific behavior or task (Alyafei and Carr, 2024).

5. Study Instruments

The research instrument used for data collection was a questionnaire. The Health

Belief Model questionnaire encompassed constructs of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy, as well as dengue fever prevention behaviors.

6. Data analysis

Univariate analysis for continuous data was conducted to obtain the mean, standard deviation, and minimum–maximum values. Bivariate analysis was performed to examine the influence of the independent variables on the dependent variable using linear regression with a significance level of $p < 0.05$. Multivariate analysis was carried out using multiple linear regression.

7. Research Ethics

This study has received an ethical feasibility certificate from the hospital. DR. Moewardi, Surakarta, Indonesia², No. 2787/XII/HREC/2024, on 13 Desember 2024.

RESULTS

1. Sample Characteristics

In this study, the characteristics of the sample were assessed based on age, sex, and history of dengue fever. Table 1 presents the characteristics of the 200 study participants. The sample distribution shows that 87 participants were aged <24 years, while 113 participants were aged ≥ 24 years. In terms of sex, 111 participants were female and 89 were male. Additionally, 50 participants had ever had dengue fever, whereas 150 participants had never had dengue fever.

Table 1. Sample characteristics (categorical data)

Variables	Frequency (n)	Precentage (%)
Age		
< 24 years old	87	43.50
≥ 24 years old	113	56.50
Gender		
Man	111	55.50
Woman	89	44.50

Variables	Frequency (n)	Percentage (%)
History of dengue fever infection		
Ever	50	25
Never	150	75

Table 2. Univariate Analysis of Continuous Data for Health Belief Model Constructs and Dengue Fever Preventive Behavior

Variabel	n	Mean	SD	Minimum	Maximum
Perceived Susceptibility	200	6.05	1.86	0	8
Perceived Severity	200	4.28	1.42	0	6
Perceived Benefits	200	4.78	1.45	1	6
Perceived Barriers	200	3.71	2.25	0	8
Cues to Action	200	5.81	2.15	1	8
Self-Efficacy	200	4.90	1.35	1	6
Dengue Prevention Behavior	200	7.68	3.08	1	12

Table 2 presents the continuous data from 200 study participants. The results show that perceived susceptibility had a mean score of 6.05, with a minimum value of 0 and a maximum of 8. Perceived severity had a mean score of 4.28, with values ranging from 0 to 6. Perceived benefits demonstrated a mean score of 4.78, with a minimum of 1 and a maximum of 6. Perceived barriers had a mean score of 3.71, with values ranging from 0 to 8. Cues to action showed a mean score of 5.81, with a minimum value of 1 and a maximum of 8. Self-efficacy had a mean score of 4.90, with

values ranging from 1 to 6. Finally, dengue prevention behavior had a mean score of 7.68, with a minimum value of 1 and a maximum of 12.

2. Bivariate Analysis

Bivariate analysis was conducted to examine the influence of the Health Belief Model constructs perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy on dengue prevention behavior. This analysis was performed using linear regression.

Table 3. Results of Simple Linear Regression Analysis of Health Belief Model Constructs on Dengue Prevention Behavior

Independent variables	Regression coefficient (b)	95% CI		p
		Lower limit	Upper limit	
Perceived Susceptibility	0.36	0.13	0.58	0.002
Perceived Severity	0.41	0.11	0.70	0.008
Perceived Benefits	0.66	0.38	0.94	<0.001
Perceived Barriers	-0.28	-0.47	-0.09	0.003
Cues to Action	0.31	0.12	0.51	0.001
Self-Efficacy	0.69	0.39	0.99	<0.001

Table 3 shows that perceived susceptibility has a positive effect on dengue fever prevention behavior ($b = 0.36$; 95% CI = 0.13 to 0.58; $p = 0.002$). This finding indicates that perceived susceptibility within the Health

Belief Model influences dengue fever prevention behavior, and the relationship is statistically significant.

Perceived severity has a positive effect on dengue fever prevention behavior ($b =$

0.41; 95% CI= 0.11 to 0.70; $p = 0.008$). This finding indicates that perceived severity within the Health Belief Model influences dengue fever prevention behavior, and the relationship is statistically significant.

Perceived benefits have a positive effect on dengue fever prevention behavior ($b=0.66$; 95% CI = 0.38 to 0.94; $p < 0.001$). This finding shows that perceived benefits within the Health Belief Model influence dengue fever prevention behavior, and the relationship is statistically significant.

Perceived barriers have a negative effect on dengue fever prevention behavior ($b=-0.28$; 95% CI = -0.47 to -0.09 ; $p=0.003$). This finding indicates that perceived barriers within the Health Belief Model influence dengue fever prevention behavior, and the relationship is statistically significant.

Cues to action have a positive effect on dengue fever prevention behavior ($b = 0.31$; 95% CI = 0.12 to 0.51; $p = 0.001$). This finding shows that cues to action within the Health Belief Model influence dengue fever prevention behavior, and the relationship is statistically significant.

Self-efficacy has a positive effect on dengue fever prevention behavior ($b= 0.69$; 95% CI = 0.39 to 0.99; $p < 0.001$). This finding indicates that self-efficacy within the Health Belief Model influences dengue fever prevention behavior, and the relationship is statistically significant.

3. Multivariate Analysis

The analysis was conducted to explain the influence of the Health Belief Model constructs—perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy—on dengue fever prevention behavior. This analysis was performed using multiple linear regression.

Table 5 indicates that perceived susceptibility has a positive effect on

dengue fever prevention behavior ($b = 0.21$; 95% CI= 0.01 to 0.43; $p = 0.049$). This finding shows that perceived susceptibility within the Health Belief Model increases dengue fever prevention behavior in the community by 0.21 units among individuals with higher perceived susceptibility.

Perceived severity has a positive effect on dengue fever prevention behavior ($b= 0.29$; 95% CI= 0.01 to 0.57; $p= 0.044$). This result shows that perceived severity within the Health Belief Model increases dengue fever prevention behavior in the community by 0.29 units among individuals with higher perceived severity.

Perceived benefits have a positive effect on dengue fever prevention behavior ($b= 0.33$; 95% CI= 0.03 to 0.63; $p= 0.030$). This finding indicates that perceived benefits within the Health Belief Model increase dengue fever prevention behavior in the community by 0.33 units among individuals with higher perceived benefits.

Perceived barriers have a negative effect on dengue fever prevention behavior ($b= -0.18$; 95% CI= -0.36 to -0.01 ; $p= 0.045$). This result shows that perceived barriers within the Health Belief Model increase dengue fever prevention behavior in the community by -0.18 units among individuals with lower perceived barriers.

Cues to action have a positive effect on dengue fever prevention behavior ($b= 0.19$; 95% CI= 0.01 to 0.37; $p= 0.042$). This finding indicates that cues to action within the Health Belief Model increase dengue fever prevention behavior in the community by 0.19 units among individuals with stronger cues to action.

Self-efficacy has a positive effect on dengue fever prevention behavior ($b = 0.33$; 95% CI= 0.01 to 0.65; $p= 0.045$). This result shows that self-efficacy within the Health Belief Model increases dengue fever prevention behavior in the community by

0.33 units among individuals with higher self-efficacy.

Overall, Table 5 shows that the multiple linear regression model demonstrates a reasonably good fit, as indicated by an

Adjusted R² of 18.16%. This implies that the independent variables collectively explain approximately 18.16% of the variance in dengue fever prevention behavior.

Table 5. Results of Multiple Linear Regression Analysis of Health Belief Model Constructs on Dengue Fever Prevention Behavior

Independent variables	Regression coefficient (b)	95% CI		p
		Lower limit	Upper Limit	
Perceived Susceptibility	0.21	0.00	0.43	0.049
Perceived Severity	0.29	0.01	0.57	0.044
Perceived Benefits	0.33	0.03	0.63	0.030
Perceived Barriers	-0.18	-0.36	-0.00	0.045
Cues to Action	0.19	0.01	0.37	0.042
Self-Efficacy	0.33	0.01	0.65	0.045
N	200			
Adj R ²	18.16%			
P < 0.001				

DISCUSSION

1. The influence of perceived susceptibility on dengue fever prevention behavior

This study found a positive influence of perceived susceptibility on dengue fever prevention behavior. This finding is consistent with Kirwelakubun and Winarti (2024), who stated that the more individuals perceive themselves as susceptible, the more likely they are to engage in disease prevention efforts. Prevention programs for dengue fever that apply the Health Belief Model can help increase community awareness of their susceptibility to the disease and encourage individuals to adopt preventive actions.

Findings from Yari et al. (2024) also demonstrate that the Health Belief Model enhances community knowledge and attitudes and positively affects perceived susceptibility related to dengue fever prevention behavior when an intervention in the form of health education is provided. After the educational intervention, most individuals in the intervention group perceived

themselves as being at risk of contracting mosquito-borne diseases.

2. The influence of perceived severity on dengue fever prevention behavior

This study found a positive influence of perceived severity on dengue fever prevention behavior. This finding is consistent with Laili and Tanoto (2021), who reported that perceived severity among the community increases as they observe worsening conditions marked by high morbidity and mortality rates. This is also in line with the findings of Wahyudi and Sulistiya (2021), which showed an increase in respondents' perceived severity scores that contributed to improved attitudes and behaviors in mosquito larvae eradication efforts.

Another study conducted by Kirwelakubun and Winarti (2024) further explained that perceived severity plays an important role in shaping dengue fever patients' perceptions. Therefore, dengue fever prevention programs that incorporate the Health Belief Model can enhance community awareness of the seriousness of

dengue fever and motivate individuals to engage in preventive actions.

3. The influence of perceived benefits on dengue fever prevention behavior

The results of this study indicate a positive influence of perceived benefits on dengue fever prevention behavior, where individuals with higher perceived benefits are more likely to engage in dengue prevention practices. Carico et al. (2021) state that perceived benefits refer to an individual's belief about the advantages gained from performing or not performing a particular behavior.

Ogunrinde et al. (2021) explain that perceived benefits within an individual motivate them to carry out certain actions in the expectation of achieving outcomes they believe to be advantageous and beneficial to themselves. This finding is consistent with research conducted by Kirwelakubun and Winarti (2024), which reported that respondents with higher perceived benefits were more likely to practice effective prevention behaviors. Perceived benefits can influence a person to adopt specific health behaviors because they believe that such behaviors can reduce the risk of disease development (Febriasari and Kusumawardhani, 2019).

4. The influence of perceived barriers on dengue fever prevention behavior

The findings of this study show that perceived barriers influence dengue fever prevention behavior, where individuals with lower perceived barriers are more likely to engage in dengue prevention practices. This indicates that communities with lower perceived barriers have a higher likelihood of performing dengue prevention behaviors, whereas those with higher perceived barriers are less likely to adopt such behaviors.

Barriers experienced by individuals represent obstacles they feel unable to overcome, even when they are aware of these barriers, leading them to believe they do not have the capability to surpass them (Weale et al., 2022). In addition, previous research has found that respondents with lower perceived barriers regarding dengue prevention demonstrated better preventive behaviors (Rakhmani et al., 2018).

5. Influence of cues to action on dengue prevention behaviors

The results of the analysis showed that there was a positive influence of cues to action on dengue prevention behaviors. Individuals with high cues to action were more likely to engage in dengue prevention behaviors. According to Montanaro and Bryan (2014), cues to action refer to various factors that trigger an individual to take action, whether from family, the surrounding environment, posters, or even health workers. In this study, the respondents received support mostly from their families, their environment, and their own personal awareness, which collectively encouraged dengue prevention behaviors.

These findings are consistent with the study conducted by Wahyudi and Ningrum (2021), which found an increase in the cues-to-action perception score of 17.30, indicating that the Health Belief Model (HBM) significantly contributes to dengue prevention. Therefore, dengue prevention programs implemented by applying the HBM can help improve community awareness of the disease and encourage individuals to undertake preventive actions.

6. Influence of self-efficacy on dengue prevention behaviors

The results of the analysis showed that there was a positive influence of self-efficacy on dengue prevention behaviors. Individuals with high self-efficacy were more likely to engage in dengue prevention

behaviors. Self-efficacy is largely determined by internal factors; the higher the level of self-efficacy an individual possesses, the better their preventive behaviors tend to be. Conversely, low self-efficacy is associated with poorer preventive behaviors, and individuals may be less disciplined in adhering to health programs they undertake (Juliawati et al., 2020).

A study conducted by Melizza et al. (2020) stated that individuals with high self-efficacy have a stronger intention to avoid risky behaviors. On the other hand, individuals with low-risk behaviors also tend to have lower motivation for engaging in risky behaviors. These findings are consistent with the study by Annan et al. (2022), which reported that self-efficacy had the highest standardized estimate, indicating that self-efficacy is the most important predictor of dengue prevention strategies, followed by knowledge and the condition of objects in the household yard.

FUNDING AND SPONSORSHIP

The study is self-funded.

ACKNOWLEDGMENT

The author would like to thank all parties involved in all the preparation and data collection in this study.

CONFLICT OF INTEREST

There were no conflicts of interest in this study.

REFERENCES

- Alyafei A, Easton-Carr R (2024). The Health Belief Model of behavior change. In StatPearls. StatPearls Publishing.
- Annan E, Angulo-molina A, Fairos W, Yaacob W, Kline N, Lopez-lemus U, Haque U (2022). Behavioral sciences determining perceived self-efficacy for preventing dengue fever in two climatically diverse Mexican States: A Cross-Sectional Study, Behavioral Sciences. Behav Sci (Basel). 12(4):94. <https://doi.org/10.3390/bs12040094>
- Bontong D, Tanifan A, Dorkas R, Humonobe I, Pesurnay Y (2022). Prevalence of dengue fever in 2019 to 2021 at Mutiara Hospital, Sorong City (in Indonesia). Walafiat Hosp J. 03(02): 115–125. <https://Whj.Umi.Ac.Id/Index.Php/Whj/Article/View/Whj2201>
- Carico R.R, Sheppard J, Thomas CB (2021). Community pharmacists and communication in the time of COVID-19: Applying the health belief model. Res Social Adm Pharm. 17(1):1984-1987. <https://doi.org/10.1016/j.sapharm.2020.03.017>.
- Febriasari G, Kusumawardhani E (2019). Beliefs and dengue fever prevention behaviors among housewives based on the Health Belief Model (in Indonesia). Jurnal Ilmu Psikologi. 10(1): 41-56. doi: 10.51353/inquiry.v10i1.22-7.
- Govindasamy D, Vijalakashmi G, Vijayakumar B, Rahul A (2024). Assessment of public perspectives and barriers towards dengue preventive practices using the Health Belief Model in Puducherry, India: A cross-sectional study. Asian Pac J Trop Med. 17(8): 358–68.
- Kementerian Kesehatan RI (2024). Update Data Dengue, (September). Available At: <https://p2p.kemkes.go.id/update/datadengue/>.
- Kirwelakubun A, Winarti E (2024). Implementation of the Health Belief Model in dengue fever prevention behaviors: A literature review (in Indonesia). J Kesehatan Tambusai. 5(1):593–605.
- Laili N, Tanoto W (2021). Community Health Belief Model regarding the

- implementation of the COVID-19 vaccination (in Indonesia). *Jurnal Ilmiah Kesehatan Keperawatan*. 17(3), 198. <https://doi.org/10.26753/jikk.v-17i3.625>.
- Melizza N, Kurnia AD, Dewi LS (2020). Smoking behavior, perceived self-efficacy, and motivation of smoking cessation among university student. *Int J Health Sci*. 8(1): 23–29
- Montanaro A, Bryan D (2014). Comparing theory-based condom interventions: Health Belief Model versus theory of planned behavior. *Health Psychology : Official Journal of the Division of Health Psychology*. APA. 33(10):12 51-1260. <https://doi.org/10.1037/a0033-969>.
- Ogunrinde O, Nnaji C, Amirkhanian A (2021). Quality management technologies in highway construction: stakeholders' perception of utility, benefits, and barriers. *Pract Period Struct Des Constr*. 26(1): DOI : 10.10-61/(ASCE)SC.1943- 5576.0000531.
- Rakhmani AN, Limpanont Y, Kaewkungwal J, Okanurak K (2018). Factors associated with dengue prevention behaviour in Lowokwaru, Malang, Indonesia: A crosssectional study, *BMC Public Health*, 18(1): 1–6. doi: 10.118-6/s12889-018- 5553-z
- Rothman KJ, Greenland S, Lash TL (2008). *Modern epidemiology* (Vol. 3). Philadelphia: Wolters Kluwer Health- /Lippincott Williams & Wilkins.
- Schlesselman JJ (1982). *Case-control studies: design, conduct, analysis*. Oxford University Press.
- Wahyudi Y, Sulistiya L (2021). Application of the dengue hemorrhagic fever prevention program to the behaviour of community support in monitoring larvae and eradicating dengue hemorrhagic fever mosquito larvae by applying the theory of Health Belief Models (in Indonesia). *Jurnal Surya Medika*. 7(1):191–196. <https://doi.org/10.330-84/jsm.v7i1.2656>.
- Weale V, Stuckey R, Kinsman N, Oakman J (2022). Workplace musculoskeletal disorders: A systematic review and key stakeholder interviews on the use of comprehensive risk management approaches. *Int J Ind Ergon*. 91: 103338. DOI: 10.1016/j.ergon.2022.1-03338.
- World Health Organization (2024) Dengue-Global Situation. Available at: <https://www.who.int/emergencies/diseases-outbreaknews/item/2024-DON518>. Accessed October 20, 2024.
- Yari A, Mohseni S, Ezati Rad R, Hosseini Z, Shahabi N, Aghamolaei T (2024). The effectiveness of educational intervention in promoting preventive behaviors of dengue fever in Southern Iran: Applying Health Belief Model (HBM). *Health Sci Rep*. 7(12):1–15.
- Zamzuri A, Majid N, Dapari R, Hassan R, Isa M (2022). Perceived risk for dengue infection mediates the relationship between attitude and practice for dengue prevention: A Study in Seremban, Malaysia. *Int J Environ Res Public Health*. 19(20).