REVIEW ARTICLE

KNOWLEDGE AND ATTITUDE RELATIONSHIP WITH 3M PLUS MOSQUITO NEST ERADICATION ACTIONS IN SURABAYA: LITERATURE REVIEW

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ABSTRACT

Dengue is a viral disease transmitted by the Aedes mosquito that causes Dengue Hemorrhagic Fever (DHF) which is a major problem in public health and has social and economic impacts. One of the key factors for the success of DHF eradication is community behavior which includes knowledge, attitudes, and actions. The purpose of this study is to conduct a literature review by analyzing the relationship between knowledge and attitudes with the act of eradicating mosquito nests based on 7 (seven) journal articles that have been selected from the selection process measured using the quality assessment of the literature Quality Assessment Tool for Quantitative Studies from the Effective Public Health Practice Project (EPHPP) which assesses selection bias, study design, confounders, blinding, data collection methods and withdrawals and dropouts so that the quality of the reviewed journals can be seen. The quality assessment of the journal resulted in 3 points: Strong, Moderate, and Weak. The result is that most respondents are housewives. Knowledge level is good, attitude level is good, and action is good enough. There is a relationship between knowledge and action and there is a relationship between attitude and action. The recommendation is to improve the ability of housewives and improve coordination with local Jumantik.

Medical and Health Science Journal.

INTRODUCTION

In 2017, the city of Surabaya had 451 dengue cases (1). This figure is the second largest in East Java after Sampang regency which had 506 cases in the same year (2). Of course, this is a problem for the area, especially the city of Surabaya. The government-regulated Dengue Hemorrhagic Fever eradication program involves many parts of the community.

Some of the factors that affect the spread of dengue fever include climate change (3), global, economic growth, population density (4), clean water availability and community behavior(5). One of the key factors of eradicating dengue fever is community behavior (6). The behavior of society in this case includes the knowledge, attitudes, and actions of society (7).

Knowledge can influence a person's attitude and actions as mentioned by Savayong (8) in terms of Mosquito Nest Eradication. The level of attitude shown by a person can influence his actions (9). A person's attitude towards a problem can affect the person's willingness to act (8).

This study aims to analyze the relationship of knowledge and attitudes with mosquito nets eradication measures. The benefit of this research is to enrich the library and prove the relationship between knowledge and attitudes with mosquito larvae eradication actions and to find out the behavior of the community towards the eradication of mosquito larvae so that they can provide feedback to the Surabaya City Health Office so that the area is achieved free of dengue fever.

METHODS OF THE STUDY

The type and design of this research is a comprehensive literature review identifying, assessing, and analyzing all relevant studies on the given topic. Meanwhile, the method used in this study is about assessing the relationship between Knowledge and Attitudes with 3M Plus Mosquito Nest Eradication Measures in Surabaya in different demographic groups, it can be a cross-sectional or case control approach. This research reviews based on the results of scientific analysis, differences, and similarities of knowledge, attitude, practice (KAP) even though there are differences in instruments in data collection and methods for data analysis.

Data is collected from Literature that can be found through the Google Scholar search engine written in Indonesian. The literature found will then be filtered with inclusion and exclusion criteria.

Inclusion Criteria:

1. The type of study chosen is the study that is the primary research. Single-group case studies and exploratory designs are reviewed and discussed to help provide explanations for positive or negative outcomes, as well as provide a basis for future research (Littell et al. 2008)(10).

2. The subject and place of research is the community, especially mothers in the Surabaya City area.

3. Studies conducted between 2014 - 2019.

Exclusion Criteria: Literature that does not meet the predetermined keywords.

In-depth searches for studies and research were searched using the keywords "Knowledge" AND "Attitudes" AND "Dengue Prevention Measures in Surabaya".

The electronic database used as a search for this study using Google Scholar only includes journals. The last search was in June 2020. Then there is a need for selection with an assessment of the quality of literature. EPHPP (Effective Public Health Practice Project) was used to assess the quality of the literature in this study. There are seven assessment items with three assessment tier categories each.

RESULTS AND DISCUSSION
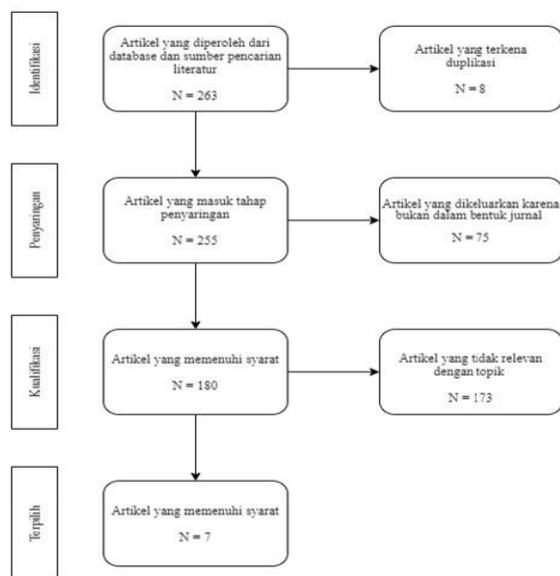
Literature Search Results

Figure 1 Diagram of the process of determining the source of literature to be analyzed

Based on figure 1, it has been explained the stages of literature selection that will be analyzed in this literature review. The selected literature was searched based on the search word "knowledge relationships, attitudes and precautions of DHF" on google scholar from 2014 to 2019. The search was conducted in June of 2020.

From the first stage of the search, 263 articles were obtained. The next selection was carried out by issuing literature that was duplicated because the title was the same but was published by different media, then 8 literatures were obtained that experienced duplication so that there were 255 articles.

From the selection, 123 articles were obtained that had to be issued because the research was carried out outside the city of Surabaya. The focusing of the research area was carried out to obtain literature review results that were more focused and reduced variations in research variables. So that researchers can conduct a more objective analysis. Up to 7 articles left to proceed to the analysis process.

Literature Quality Assessment

In this study, the literature quality assessment used the Quality Assessment Tool for Quantitate Studies from the Effective Public Health Practice Project (EPHPP) which assessed selection bias, study design, confounders, blinding, data collection methods and withdrawals and dropouts so that the quality of the journals reviewed would be visible. The journal quality assessment yielded 3 values: Strong, Moderate, and Weak.

Tabel 1 Kualitas Jurnal berdasarkan Effective Public Health Practice Project (EPHPP)

Author	Selection Bias	Study Design	Confounders	Blinding	Data Collection Method	Withdrawals and	Rating
Prastiani , dkk (2018)	1	1	3	2	2	1	1
Muda, dkk(2019)	1	1	3	2	2	1	1
Agustin (2019) (8)	1	1	2	2	2	1	1

Rismawati, dkk (2017)	1	1	3	2	2	1	1
Sari (2015)	1	1	3	2	2	1	1
Fauziah, dkk (2019)	1	1	2	2	2	1	1
Jayawardhana, dkk (2018)	1	1	3	2	2	1	2

Information: 1 = *Strong*, 2 = *Moderate*, 3 = *Weak*

The results of the critical appraisal assessment are that there are 6 (six) journals with a strong rate, 1 (one) journal with a moderate rate, and there are no journals with a weak rate. The details of the assessment in each component of the assessment are contained in table 1.

The seven studies that fit the inclusion criteria of this literature review involved 5 cross-sectional studies and 2 case control studies (Table 2). The publication time of the study used in this study ranged from 2015 to 2020. The location of all studies is in the city of Surabaya, including Gunung Anyar Village and Rungkut Menanggal Village, Rangkah Buntu Village, Tenggilis Health Center Area, Wonokusumo Village, Putat Jaya Village, Jambangan Village.

Of the seven studies that have been selected in this literature review, it generally uses independent variables of knowledge, attitudes and actions/behaviors with the dependent variables used are larvae detection, the presence of larvae and the incidence/incidence of DHF as listed in table 2.

The research instruments used by the selected study are interviews with questionnaires and observation sheets, as well as examination of the presence or density of larvae.

Literature Characteristics

Socio-demographic overview of the article

The characteristics of respondents are often used as variables in research related to analyzing the relationship

Characteristics of Inclusion Studies

Table 2 Characteristics of the inclusion study methodology

Literature (Year)	Types of Studies and Sampling Techniques	Implementation Location	Independent Variables	Dependent Variables	Research Instruments
Prastiani, dkk (2020) (11)	*Cross Sectional Study, Cluster, Random Sampling*	Gunung Anyar Village and Rungkut	Air temperature, occupancy density, knowledge and	House Indeks (HI)	Interview (questionnaire), observation,

		Menanggal Village,	attitude towards DHF and PS		Container Index
Muda, dkk (2019) (12)	*Cross Sectional Study, Simple, Random Sampling*	Rangkah Buntu Village	Education, income, knowledge and attitudes	The presence of larvae	Interview (questionnaire), observation
Agustin (2019) (13)	*Case Control, Purposive Sampling*	Tenggilis Health Center Area	Knowledge, attitudes, and actions	DHF incidents	Interview (questionnaire), observation
Rismawati, dkk (2017) (14)	*Cross Sectional Study, Simple, Random Sampling*	Wonokusumo Subdistrict,	*Host* and environment behavior	DHF incidents	Interview (questionnaire), observation, Flick-Free Number
Sari, dkk (2015) (15)	*Cross Sectional Study, Simple Random Sampling*	Putat Jaya Village, Surabaya	Knowledge and actions	DHF incidents	Interview (questionnaire)
Fauziah, dkk (2019) (16)	*Case Control, Purposive Sampling*	Tenggilis Health Center Area,	Knowledge and actions	DHF incidents	Questionnaires, observations
Jayawardhana, dkk (2017) (17)	*Cross Sectional Study, Simple Random Sampling*	Jambangan Village,	Family behavior	DHF incidents	Questionnaire

between knowledge, attitudes and behaviors for dengue fever prevention or eradication of mosquito nests (PSN)

Some of the characteristics of respondents that are variable include the age of the respondents (11) (14) (15) (17), gender (11) (12), employment (11) (14) (15) (17), income (12), and Education level (11) (12) (14) (15) (17) In studies with respondents who tend to be homogeneous on sex variables, gender is not one of the characteristic variables of respondents, such as all respondents are

cadre mothers (14) (15) or gender is considered not to be one of the variables to consider (17). However, there are some studies that do not make the characteristics of respondents as variables written on the research results because they are not discussed in the study (13) (16).

Variable respondents at the age of the majority 41 – 50 years, at least 23 years maximum 80 years (11), 30 – 35 years (14), aged > 40 years (15), 41 – 65 years (12), aged 24 people (17). Most respondents were female (11) (12).

Employment variables in respondents of most housewives (11) (14) (15) and most of the private work (17). Education level variables of most high school respondents (11) (12) (14) (15) (17).

Interpretation and Discussion of Results

Knowledge of PSN with 3M

Knowledge as one of the variables of research consists of being spelled out with several questions. It consists of 5 questions (12), 7 questions (11) and 10 questions (14). There are variables of knowledge categorized into three, namely less, sufficient, and good (11) (15) (16); (12) bad, sufficient, and good (13); (14). There are also those who do not discuss knowledge in terms of dengue incidents (17).

Most respondents had less category knowledge (11). In some studies, the results were obtained that most respondents had good knowledge (15).

Some studies have also compared knowledge from case and control groups (13) (12). Most respondents in the study group had good knowledge (31.82 %). Most respondents in the comparison group had poor knowledge (40.91%) (13). The percentage of respondents with good knowledge was higher in the control group than the case group (16).

Attitude about PSN with 3M

The attitude assessed was the attitude about dengue fever and mosquito nets eradication (PSN) with 11 questions (11). The attitude also discusses the attitudes of respondents regarding 3M (16). Attitude is measured by 10 questions (13).

The attitude variables are categorized into three, namely less, sufficient, and good (11) (16). There are also attitudes that are not used as variables studied (15); (17). There are also categories of attitude variables that are categorized into two, namely good and less (12). Most respondents had sufficient attitudes (11) (14). Most respondents had a good attitude (16).

Actions about PSN with 3M

Preventive measures in this regard such as the eradication of mosquito nests (11) (16); (17). The action also looks at how it relates to cases of dengue fever (11); (15). The description of actions includes draining the bathroom once a week, not allowing clothes to hang in the house, using mosquito repellent / mosquito repellent (burn, rub, spray) and sprinkling abate powder on the water reservoir / bathroom (12) (14).

Actions include bringing family members affected by DHF to health facilities and reporting to RT, RW, or lurah cadres (14). The discussion of actions is also related to jumantik actions to empower the community in implementing mosquito nets eradication efforts programs with the implementation of 3M plus. Action is measured by 17 questions (13).

Measures also include first aid efforts in people with DHF. In addition, actions taken include hand washing efforts, planting mosquito repellent plants. Actions are categorized into two, namely high and low (11) , doing 3M+ Actions and not doing 3M Actions (12). Categorization is also divided into three, namely less, sufficient, and good (15); (16) or good, enough, and bad (13).

Most respondents had actions with low categories (11), bad (13). However, there is also most respondents having sufficient Actions (15), Good actions (16) Active category actions.

The actions taken were to drain the bathtub at least once a week 115 people while 96 people did not, hang dirty clothes for more than one day a total of 105 people and 106 people did not, 184 people cleaned the house while 28 people sometimes (12). The action is also carried out based on whether to experience the incidence of DHF then the result is obtained that the majority have never experienced the occurrence of DHF (14); (15).

The categories of behavior are good, sufficient, lacking (17). Most residents behave quite 54% (17). The percentage of respondents with good action was higher in the case group than the control group (16). The incidence of DHF is categorized into three, namely good, sufficient, lacking. The percentage of the three categories is almost the same, but the highest is the percentage in the sufficient group (17).

The relationship of knowledge with the actions of PSN

Knowledge is the result of knowing and occurs after a person has sensed an object(18). Knowledge is an important factor in the formation of a behavior because behavior based on knowledge will last longer than without being based on knowledge (11). In this study, the selected inclusion study will assess respondents' knowledge related to DHF disease, Mosquito Nest Eradication, and 3M+ measures. In Rismawati's research (14) a meaningful relationship (p = 0.00) was obtained between knowledge and incidence of DHF where most respondents who had never experienced DHF had a sufficient level of knowledge (44.9%) and obtained a meaningful relationship between actions and the incidence of respondents who had never experienced DHF, the majority had sufficient invaluable actions (54%). From the study, it can be interpreted that the level of knowledge will affect the manifestation of respondents' actions related to DHF and PSN diseases.

The research is not in line with the research of Agustin (13), Muda (12) Sari (15) and Fauziah et al., (16), where in the four studies there was no relationship between knowledge and actions related to DHF disease

and PSN activities. A meaningful relationship was obtained between knowledge and incidence of DHF (p = 0.009) with most respondents who had never experienced the incidence of DHF having a less valuable level of knowledge (13). The research of Muda et al., (12) found a meaningful relationship between knowledge and incidence of DHF (p = 0.001) with respondents who found the presence of larvae in their home areas, the majority of whom had a good level of knowledge. Research by Fauziah et al. (16) suggests that knowledge and action have no relationship related to the incidence of dengue fever

The relationship of attitude to action

Attitude is a reaction or response that is still closed from a person to a stimulus or object (19). The manifestation of an attitude may not necessarily be directly manifested into an action or an activity. However, attitude is a predisposing factor to the actions of an individual's behavior. In this study, the attitudes assessed were respondents' attitudes related to Mosquito Nest Eradication (PSN), 3M behavior, and DHF disease. Meanwhile, in terms of actions, including reviewing respondents' actions related to draining the bathroom once a week, not allowing clothes to depend in the house, using mosquito repellent / mosquito repellent drugs (burn, rub, spray) and sprinkling abate powder on the tub of the water storage container / bathroom.

Research by Rismawati et al., (14) respondents who have never experienced DHF tend to have sufficient attitudes (56.4%) p =

0.00 and respondents who have never experienced DHF are most actions that are considered sufficient (54%) p = 0.00 (14). So, in the study, it can be said that in respondents who have never contracted DHF, most of them have sufficient attitudes and actions. This research is supported by the research of Fauziah et al. (16), where in their research found a statistically meaningful relationship between respondents' attitudes and the incidence of DHF with a p value of 0.013 where most respondents had a good attitude. In addition, in his research, it was found that most respondents had good invaluable actions. So, from the two studies, it can be said that there is a relationship between attitudes and manifestations of respondents' actions related to dengue incidence.

The two studies were not in line with the research of Muda et al., (12) and the research of Fauziah et al., (16) where in both studies there was no relationship between attitudes and actions with the incidence of DHF and the number of larvae presence. This is contradictory because it is suspected that the public's sense of awareness in preventing and overcoming dengue fever events is still low. An individual in acting to do something should be based on a high sense of awareness so that his actions are in accordance with the knowledge they have. If an action is not based on a high sense of awareness, PSN DBD activities as an effort to prevent and overcome the occurrence of dengue cases will not run optimally (15). Therefore, predisposing factors to the manifestation of an individual's actions in the prevention of DHF not only

affect his attitude and knowledge related to DHF and PSN diseases, but a high sense of awareness will be able to provide maximum efforts in preventing and overcoming the occurrence of DHF cases.

CONCLUSION

Based on the results obtained from the processing of research data, it was concluded that:

1. There was no relationship between knowledge and actions related to DHF disease and PSN activities.

2. There is a relationship between attitudes and actions related to dengue disease and PSN activities, but this needs to be reviewed because the literature that supports this statement is not very strong.

RECOMMENDATIONS

From this research, it is hoped that it will add search engine references and add journal language, expand areas that do not yet have data

CONFLICT OF INTEREST

The author started there is no conflict of interest.

REFERENCES

1.   Dinas Kesehatan Kota Surabaya. Profil Kesehatan Kota Surabaya 2017. 2018.

2.   KESEHATAN PROVINSI JAWA TIMUR Jl Ahmad Yani D. PROFIL KESEHATAN PROVINSI JAWA TIMUR TAHUN 2017. 2018.

3.   Maulana MR, Yudhastuti R, Lusno MFD, Mirasa YA, Haksama S, Husnina Z. Climate and visitors as the influencing factors of dengue fever in Badung District of Bali, Indonesia. Int J Environ Health Res. 2022;

4.   Yudhastuti R, Lusno MFD, Mirasa YA, Husnina Z. Dengue Fever Dynamics in Bali, Indonesia 2010-2018: An Interplay of Population Density and Climatic Factors. Acta Med Iran [Internet]. 2022; Available from: https://publish.kne-publishing.com/index.php/ACTA/article/view/10042

5.   Trisandy AY, Azmi Maruf M, Yudhastuti R, Lusno MFD, Notobroto HB. Large-Scale Social Restriction (LSSR) Policy and Dengue Hemorrhagic Fever Cases during COVID-19 Pandemic in Indonesia (Case Studies: Five Cities/Districts in East Java Province). Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) [Internet]. 2021;0(0):49–52. Available from: https://journal.fkm.ui.ac.id/kesmas/article/view/5008

6.   Yudhastuti R, Lusno MFD. Overview of Cases of Dengue Hemorrhagic Fever (DHF) in Bali Province 2012-2017. Jurnal Kesehatan Lingkungan Indonesia [Internet]. 2020;19(1):27. Available from:

https://ejournal.undip.ac.id/index.php/jkli/article/view/25208

7. Elsinga J, Schmidt M, Lizarazo EF, Vincenti-Gonzalez MF, Velasco-Salas ZI, Arias L, et al. Knowledge, attitudes, and preventive practices regarding dengue in maracay, Venezuela. American Journal of Tropical Medicine and Hygiene. 2018;99(1):195–203.

8. Martina SE, Bratajaya CNA, Ernawati E. Dengue hemorrhagic fever: Knowledge, attitude, and practice in Palmeriam, Jakarta, Indonesia. GHMJ (Global Health Management Journal). 2018;

9. Heng BH, Goh KT, How ST, Chua LT. Knowledge, attitude, belief and practice on dengue and Aedes mosquito. Dengue in Singapore. 1998.

10. Johnson BT, Hennessy EA. Systematic reviews and meta-analyses in the health sciences: Best practice methods for research syntheses. Soc Sci Med [Internet]. 2019 Jul 1 [cited 2022 Nov 8];233:237–51. Available from: https://pubmed.ncbi.nlm.nih.gov/31233957/

11. Prastiani I, Prasasti CI. Densidad residencial, comportamiento, e incidencia de fiebre hemorrágica del dengue en Surabaya, Indonesia / Residential density, behavior and dengue haemorraghic fever (dhf) incidence in Surabaya. Medicina Social [Internet]. 2020 Aug 7 [cited 2022 Nov 8];13(1):10–6. Available from: https://medicinasocial.info/index.php/medicinasocial/article/view/1085

12. Muda AS. DETERMINAN YANG BERHUBUNGAN DENGAN KEBERADAAN JENTIK DI KELURAHAN RANGKAH BUNTU, SURABAYA. Jurnal PROMKES. 2019 Aug 20;7(1):22.

13. Ristia Agustin Program Studi Di Luar Kampus Utama E, Kusuma No W, Cuking Rw L, Banyuwangi K, Banyuwangi K, Timur - J. Breeding sites eradication program and Dengue fever incidence reduction in Tenggilis Public Health Center Surabaya: An Association Study. JURNAL KESEHATAN LINGKUNGAN [Internet]. 2019 Feb 1 [cited 2022 Nov 8];11(1):35–44. Available from: https://e-journal.unair.ac.id/JKL/article/view/8967

14. Rismawati SN. Relationship Host Behavior and The Environment of DHF Incidence in Wonokusumo Surabaya. Jurnal Berkala Epidemiologi. 2018 Jan 10;5(3):383.

15. Sari R, Utami B. The Association Knowledge and Community Practice with the Incidence of DHF (Study in the Village of Putat Jaya Surabaya on 2010–2014). Jurnal Berkala Epidemiologi [Internet]. 2015 May 1 [cited 2022 Nov

8];3(2):242–53. Available from: https://e-journal.unair.ac.id/JBE/article/view/1665

16.   Fauziah N, Rahayu U, Thohari I. PERILAKU 3M BAGI PENGHUNI RUMAH MEMPENGARUHI KEJADIAN PENYAKIT DEMAM BERDARAH DENGUE. GEMA LINGKUNGAN KESEHATAN [Internet]. 2019 Jan 31 [cited 2022 Nov 8];17(1). Available from: http://journal.poltekkesdepkes-sby.ac.id/index.php/KESLING/article/view/1053

17.   Keperawatan dan Kebidanan J, Ilmu Kesehatan Universitas Merdeka Surabaya Jl Ketintang Madya VII F, Tel S, Perilaku Keluarga Dengan Pencegahan Kejadian Demam Berdarah Dengue Di Kelurahan Jambangan Kota Surabaya Andi Jayawardhana H, Aji Permana R, Kogoya Y, et al. Hubungan Perilaku Keluarga Dengan Pencegahan Kejadian Demam Berdarah Dengue (DBD) Di Kelurahan Jambangan Kota Surabaya. NERSMID : Jurnal Keperawatan dan Kebidanan [Internet]. 2019 [cited 2022 Nov 8];2(1):55–65. Available from: https://nersmid.unmerbaya.ac.id/index.php/nersmid/article/view/59

18.   Yussof FM, Hassan A, Zin T, Hussin TMAR, Kadarman N, Umar R. Knowledge of dengue among students in Universiti Sultan Zainal Abidin (UNISZA), Terengganu, Malaysia and the influence of knowledge of dengue on attitude and practice. Journal of Fundamental and Applied Sciences. 2018;

19.   Notoatmodjo S. Promosi Kesehatan dan Perilaku Kesehatan. Revisi. Jakarta: Rineka Cipta; 2014.