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To cite this article: Musdalifah Syamsul *et al* 2018 *J. Phys.: Conf. Ser.* **1028** 012002

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The Roles of Family in Preventing Dengue Fever in Regency of Maros, South Sulawesi, Indonesia

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Abstract. Dengue is a mosquito-borne infection that has emerged become major public health issue and can result in death in Maros, South Sulawesi, Indonesia. Dengue fever has no vaccination, and no cure. Therefore, prevention through vector control is the primary method of public protection. The purpose of this study was to determine the roles of family knowledge and attitudes in preventing dengue fever in the regency of Maros. The research was conducted to assess the level of knowledge and attitude concerning dengue fever; data collection used a sample of 84 families selected by purposive sampling. The average of level of knowledge of dengue fever was 77%, and attitudes of respondent were 7%. The family knowledge (X^2 count = 13.566) and family attitudes (X^2 count = 26.698) had a value of X^2 count > X^2 table (3,841). This study showed a significant association of knowledge and attitudes, and that they were able to prevent the spread of dengue fever. Families and communities should constantly improve their knowledge and be proactive in preventing the spread of the dengue disease through campaigns and social mobilization.

1. Introduction

Dengue fever has re-emerged as a major public health challenge worldwide, an estimated 50% of the global human population is at risk of contracting dengue fever, a disease that is transmitted by the *Aedes aegypti* or *Aedes albopictus* mosquito [1]. The spread of dengue virus (DENV) to more than 100 countries has raised the profile of the disease, and it is now the leading mosquito borne viral disease. The World Health Organization (WHO) estimates that approximately 50-100 million infections, 500,000 severe dengue cases and 20,000 deaths, mainly in children below the age of 15, occur annually. However, a recent epidemiological survey has raised these numbers and estimated that around 96 million symptomatic of dengue cases occurred in 2010 out of a total of 390 million infections [2]. The goal the global strategy is to reduce the burden of dengue. The specific objectives are to reduce mortality and morbidity from dengue by 2020 by at least 50% and 25% respectively (using 2010 as the baseline). These objectives can be achieved by applying existing knowledge [3]. The epidemiology and ecology of dengue fever are strongly associated with human habits [4]. Evaluations of people's knowledge, attitudes, and practices might be of great importance to improving integrated control measures [5]. Moreover, community knowledge and preventive behaviors regarding the cause, transmission, prevention and treatment of dengue fever are significant socio-cultural factors that have influenced the adoption of dengue fever control measures [6].



The Ministry of Health of Indonesia recorded the number of dengue fever patients in Indonesia in January-February 2016 as many as 8,487 cases with the number of deaths 108 people. The highest number of dengue fever in Indonesia at the age of 5-14 years reaches 43.44% and the age of 15-44 years reaches 33.25%. People are asked to stay alert to dengue fever because every year the incidence of dengue hemorrhagic fever in Indonesia tends to increase in the middle of the rainy season around January, and decrease in February until the end of the year. The number of dengue fever patients in Makassar had been increase in cases in January has 30 cases. In December 2016, the number of cases only 22 [4]. Outbreak of dengue fever occurred in the districts, it is characterized by a very high number of cases in 2016 there were 1117 cases with 6 deaths (CFR = 0.54%) [6]. The increasing number of cases and the increase in the area affected by dengue fever is believed to reflect an increasing number of new settlements and a lack of implementation of measures to control mosquito populations. In addition to the lack of control measures, the behaviour of individuals and communities also influences the mosquito population, such as the failure to appropriately dispose of litter, which can provide a breeding environment for mosquitos [6]. The community demonstrated gaps in knowledge and poor attitude which may affect the level and frequency of preventive practice [7].

This study was carried out to assess the knowledge and attitudes related to dengue fever in regency of Maros, South Sulawesi Indonesia. Dengue fever (DF) is a disease that is endemic especially for children. The main symptoms of this disease has a high heat, bleeding spots in the skin, bleeding gums and nose and cause a shock which can cause death. Incidence of dengue fever is usually more common in the rainy season which is around January to April.

2. Methods

2.1. Sample

This research was conducted in the regency of Maros with considering in 2016 has been occurred outbreak with 1117 cases and 6 of them were died (Department of health of South Sulawesi, 2016). A community-based cross sectional survey was conducted in the regency of Maros. The population of Maros village at the time of the survey comprised 217 families. Based on the result of sample calculation using the formula of Lemeshow were 84 respondents. The sampling technique used was purposive sampling based on the following criteria: willingness of the family to fill in questionnaire; families have suffered from dengue fever; families who have never suffered from dengue but who reside in the regency of Maros. The interviews were conducted with family members in their homes. The first house was randomly selected according to the geographical localization followed by a systematic selection.

2.2. Data Collection and Analysis

The data was collected by face to face interview using a questionnaire (knowledge and attitude of dengue fever). The questionnaire was divided into three sections (the first section concerned with socio demographic, the second section concerned with knowledge comprised 10 questions and the third part with attitude consisting of 10 questions). Data were collected by direct visits to the residences of the sample families for interviews. Data collection was carried out in 15 days. Cases of dengue fever were collected through visits to Health Department of Makassar City, The Health Department of Maros, and The District Administrative Office of Maros. The informants for this study were the obtained through observation and depth interviews.

The Statistical Package for Social Sciences (SPSS) version 17.0 was used to analyze the data collected. Each question was analyzed individually. Knowledge and attitude were assessed using a scoring system. The study analyses included descriptive about gender, age, level of education, occupation, univariate, and bivariate analyses. Chi-square test was used to determine the of preventive behaviours related to dengue vector control, measures knowledge and attitudes of family with level of significance 0.05.

3. Results

Descriptive characteristics of the analyzed sample are shown in table 1. The gender are highest in men for 52 (61.9%) of respondents and the lowest female as much as 32 respondents (38.1%). The highest number of age group is 40-44 years (14 respondents) and the lowest 20-24, 55-59 and 60 years (7.1%). The highest of unemployed respondents as much as 31 respondents (36.9%) and the lowest TNI / Police and farmers as much as 2 respondents (2.4%). Highest level of education is high school (44 respondents (52.4%) and the lowest is the primary school (1.2%). Most of the respondents (54 respondents or 77.4%) have good knowledge whereas 19 respondents (22.6%) have poor knowledge. Regarding attitudes, 59 out of 84 respondents (70.2%) have good attitudes, whereas 25 respondents (29.8 %) have poor attitudes

Table 1. Demographic characteristics of the analysed sample ($N = 84$)

Variable	Frequency	Percentage
Gender distribution		
Male	52	61.9
Female	32	38.1
Age Distribution		
20-24	6	7.1
25-29	12	14.3
30-34	13	15.5
35-39	9	10.7
40-44	14	16.7
45-49	9	10.7
50-54	9	10.7
55-59	6	7.1
>60	6	7.1
Occupation		
Unemployed	31	36.9
Civil servant	15	17.9
Army	2	2.4
Retired	5	5.9
Farmer	2	2.4
Entrepreneur	29	34.5
Level of Education		
Good	65	77.4
Poor	19	22.6
Attitude		
Good	59	70.2
Poor	25	29.8

Knowledge and role of family were categorized into two groups (good and poor). Participants scored (83.1%) on knowledge were classified as good of knowledge and good family role compared with good of knowledge and poor family role (16.9%). Chi square test was used to determine the association between knowledge and family role in preventing dengue fever in Maros were (X^2) count = 13.566, X^2 table = 3.841). (Table 2). This study found significant association between attitudes and family role (Table 3) in preventing dengue fever. The table 3 shows respondents' good attitude of dengue fever and family role (89.8%) compared with good of attitude and poor family role (16.9%).

Table 2. Knowledge and family role in preventing dengue fever in Maros, Indonesia

Knowledge	Family Roles		No	%	X^2 Count	X^2 Table
	Good	Poor				

Good	54 (83.1)	11 (16.9)	65	100.0		
Poor	7 (36.8)	12 (36.8)	19	100.0	13.56	3.84
Total	61 (72.6)	23 (27.4)	84	100.0		

Table 3. Attitude and family role in preventing dengue fever in Maros, Indonesia

Attitude	Family Roles		No	%	X ² Count	X ² Table
	Good	Poor				
Good	53 (89.9)	6 (10.2)	59	100.0		
Poor	8 (32.0)	17 (68.0)	25	100.0	26.698	3.841
Total	61 (72.6)	23 (27.4)	84	100.0		

3.1. Association between knowledge and family role in preventing dengue fever

Distribution of respondents by the family knowledge indicates that sufficient knowledge about dengue with good family role in the prevention of dengue fever as much as 83.1%. This is supported by Notoatmojo [6], which revealed that knowledge can change behaviour in the desired direction. It is expected with a good knowledge of DHF will provide family roles are good also in the prevention of dengue disease in a proactive way in the motion 3 M plus a minimum of once a week, giving abate powder to kill larvae, using mosquito nets while sleeping and medication use mosquito repellent. The higher the educational level, the extensive knowledge and a better level of understanding of a concept with a way of thinking and analyzing the sharp by itself gives a good perception also apply to the object being observed, because they have been through a learning process that is not found on previous education. Primary prevention is the most effective measure in dengue prevention and control. The objectives were to determine the level of knowledge and practice of dengue control amongst the study community and to explore affecting practice of dengue control in the study area [8]. Behavioural risk factors, individual determinants of outcome and leading indicators of severe illness are poorly understood, compromising the effectiveness of control programmes [9].

The current study indicated a good role in the prevention of dengue disease was 36.8% of respondent. This is because these forms of knowledge are poorly understood by the respondents is the cause of the disease caused by dengue virus most of them do not correspond, the respondents thought that the cause was the mosquitoes, but vector that cause disease. While good knowledge contained in the form of questions such as disease prevention, use mosquito nets, environmental health surveillance. Poor knowledge of DF and a low level of education were significantly associated with poor preventive practice [17]. We conclude that there is need to increase health promotion activities to increase knowledge which forms the basis for preventive practice as a part to control dengue [8]. The participants demonstrated gaps in knowledge and poor attitude which may affect the level and frequency of preventive practices [7].

3.2. Association between attitudes and family role in preventing dengue fever

Distribution of respondents by family attitudes shows that the attitude of family good with a good family role in the prevention of dengue fever as much as 89.8% of respondents. This is in line with Mar'at theory which says that attitude is a disposition or mental state within the soul or self of an individual / family to react to the environment or the public, the natural environment and the physical environment, the attitude is evaluative response that can be either positive or negative response. Families give a positive response in the prevention of dengue disease in the form of support and efforts in the prevention of dengue disease activity. The attitude of the family in supporting the prevention of dengue disease is influenced by several factors, as the theory Notoatmojo [6] that in the process of formation and change of attitude is influenced by several factors from within and from outside the individual or family.

The discovery of the family who have the attitude that less support the prevention of dengue disease, but has the role of a good family in the prevention of this disease is as much as 8 respondents (32%), in line with the theory Notoatmojo [6], which describes the closed attitude that cannot be

observed by others that a person's response to the stimulus in the form enclosed. Attitudes are less supportive of prevention of dengue disease does not mean having a less role in the prevention of dengue fever because of the role of prevention of disease can arise because of social factors affected the community. The respondent's attitude was found to be good and most of them were supportive of Aedes control measures. There is significant association found between knowledge of dengue and attitude towards Aedes control ($p = 0.047$). It was also found that good knowledge does not necessarily lead to good practice [9].

The knowledge and attitude belong to a family are still influenced by various factors that can impede the family to take action according to the knowledge they have. For families expected to constantly increase the participation and role in the prevention of dengue by enhancing the knowledge and attitudes to support dengue prevention activities.

4. Conclusion

This study showed a significant association of knowledge and attitudes, and that they were able to prevent the spread of dengue fever. Families and communities should constantly improve their knowledge and be proactive in preventing the spread of the dengue disease through campaigns and social mobilization.

Acknowledgments

We would like to thank all the community in Maros who participated in this research. Thank also to the mentor Shirin Jamarani at University of Queensland, government of Maros, Head of Public Health Center of Maros, all authors of this work, and our families for support.

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