

## **Socioeconomic factors, Attitude and Behavior As Critical Determinants for Dengue Prevention Program in Sleman, Indonesia**

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### Background

Socioeconomic, attitudes and behavior are the three factors are thought to play a role in determining Free Larvae Index in Sleman, Yogyakarta, Indonesia. Socioeconomic level that varies between Depok District and Moyudan District in Sleman are indicated by the type of education and the vary of the job . The dominant population in the Moyudan district employed as a farmer and has lower education levels than Depok. It is also an impact on the lower income levels in Moyudan Districts.

### Aim

Determine whether socioeconomic, attitudes and behavior factors affect the Free Larvae Index as an indicator of the successfully of dengue prevention program.

### Method

This type of research is descriptive analytic with cross sectional study design. The study population was resident in Sumber Sari subdistrict, District of Moyudan and Catur Tunggal subdistrict, District of Depok, Sleman, Yogyakarta. Samples used in this study were 237 respondents with age characteristics between 17-79 years. Analysis of the data using Spearman correlation analysis and contingency coefficients with SPSS for windows.

### Result

Depok husband's employment had a p value 0.019 while the attitudes and behavior have the p value 0.000, which means there is a significant relationship between husband's employment ( $r = 0.383$ ), attitude and behavior ( $r = 0.372$ ) of the Free Larvae Index in Depok District. Likewise found in Moyudan District with p value 0.014 ( $r = 0.357$ ) for husband's employment, while attitudes and behaviour have the p value 0.000 ( $r = 0.522$ ).

### Conclusion

Husband's employment, attitude and behavior are three factors that play a role in determining the Free Larvae Index as an indicator of Dengue Hemorrhagic Fever prevention program. Moyudan District is an area with Free Larvae Index is higher than the Depok districts.

Keywords: Socioeconomic, attitude, behavior, Free Larvae Index, Dengue Hemorrhagic Fever

## 1. INTRODUCTION

Dengue Hemorrhagic Fever (DHF) has become a public health problem in Indonesia over the past 45 years (Directorate of Disease Control and Environmental Health 2013). Special Region of Yogyakarta is one of the provinces in Indonesia that has dengue disease morbidity of 65.25 per 100,000 population. Depok district has reported dengue cases in the year 2010 as many as 88 peoples, in 2011 as many as 21 peoples, in 2012 as many as 10 peoples and in 2013 as many as 82 peoples (Health District Sleman 2013). The four years of data recorded showed that the Caturtunggal sub district is the most affected by dengue. Moyudan district consisting of 4 sub district, among of them in 2011 only Summersari sub district with dengue cases and in 2012 affected only one person cases with dengue in the Summersari sub district (Health District Sleman 2013). According to data of dengue cases, Depok district is an endemic area and Moyudan district is a sporadic areas for dengue cases.

Another factor affecting the incidence of dengue is a socio-economic level, attitudes and behavior of citizens in Sleman regency. Socioeconomic level according to the National Center for Educational Statistics (NCES 2012) consists of education, employment and income. Someone who is well educated, have steady employment and adequate income would have awareness of good health. Someone who has an awareness of good health should be in line with better behaviour.

In this research, we have concern about the differences of dengue free larvae index between Depok district and Moyudan district. The two subdistricts have different characteristic because of the socio economic factor which was higher in Depok. In this observation we found that Depok district from year to year has its own record in the case of patients affected by dengue. Moyudan district has fewer cases compare with Depok district. Moyudan district is predominantly agricultural region which made 1/6 of its residents employmenting on farms so the minimum wage in District Moyudan and Depok has a gap. Based on this concern, it was necessary to determine whether socioeconomic factors, attitudes and behavior affect the free larvae index as an indicator of the successful dengue prevention program.

## 2. RESEARCH METHODOLOGY

This type of research is descriptive analytic with cross-sectional study design .The study population was residents in Moyudan and Depok Sub districts, Sleman, Yogyakarta Special Region. The study sample was taken in Catur Tunggal Subdistrict, Depok District and Sumber Sari Sub district, Moyudan District by purposive sampling method followed by quota sampling method. Study period was seven month from February-August 2015. Exclusion criteria was domiciled in Depok and Moyudan districts, Sleman, Yogyakarta Special Province for less than 6 months. The sample calculated by the formula (binomunal proportions) (Suyanto 2001) :

$$n : \frac{Z^2 p (1-p) N}{d^2 (N-1) + Z^2 p (1-p)} \quad (1)$$

Description :

n: number of samples minimum required

$\alpha$ : the degree of trust

p: the proportion affected by dengue  
q: 1-p (proportion that are not affected by dengue)  
d: limits of error or absolute precision

Variable that used in this research are attitude and behavior accordings to individuals against dengue mosquito nest eradication which refers to the implementation of 4M Plus. Socio economic divided into husband's employment ( type of husband employment ex. entrepreneur, employee, labour, teacher and health employer), wife's employment ( type of wife's employment ex. entrepreneur, employee, labour, teacher and health employer). Income (salary earner in the family with the classification earning less than IDR 1,250,000 / month, IDR 1250000-2500000/ month and more than IDR.2,500,000). Research sample total based on calculation are 237 respondents. We used questionnaire adopted from 3M Plus guide from Directorate of Disease Control and Environmental Health Department of the Republic Indonesia (2011), which has been revised to 4M Plus. Validity and reliability of research carried out on 30 samples. Analysis data in this study was using comparative analysis method Chi-Square with SPSS for windows.

### 3.RESULT

**Table 4.1 Age Characteristics**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Standart Deviation</b>
<b>Age</b>	244	17	79	45, 9508	14, 31759

**Table 4.2 Gender Characteristics**

<b>Gender</b>	<b>Caturtunggal</b>	<b>Sumbersari</b>	<b>Amount</b>
	<b>Sub district</b>	<b>Sub district</b>	
	<b>(%)</b>	<b>(%)</b>	
Man	98,07	1,92	52
Woman	38,02	61,97	192
<b>Total</b>	<b>-</b>	<b>120</b>	<b>244</b>

**Table 4.3 Tribe Characteristics**

<b>Tribe</b>	<b>Caturtunggal Sub district (%)</b>	<b>Sumbersari Sub district (%)</b>	<b>Amount</b>
Jawa	48,05	51,94	231
Sunda	100	0	3
Aceh	100	0	1
Batak	100	0	3
Minang	100	0	5
Melayu	100	0	1
<b>Total</b>	-	0	244

**Table 4.4 Religion Characteristics**

<b>Religion</b>	<b>Caturtunggal Sub district</b>	<b>Sumbersari Sub district</b>	<b>Amount</b>
Islam	120	106	226
Katolik	2	14	16
Kristen	2	-	2
Total	124	120	244

**Table 4.5 Correlation table**

Variable	Correlation value		
	Both of sub district	Depok District	Moyudan District
Free Larvae Index with attitude and behaviour	0.000	0.000	0.000
Free Larvae Index with Husband's employment	0.000	0.019	0.014
Free Larvae Index with wife's employment	0.006	0.105	0.438
Free Larvae Index with income	0.779	0.231	0.420

#### 4.DISCUSSION

Depok district as dengue endemic area has varied range of cases. In the year 2010 it experienced as many as 88 cases; in 2011 bore 21 cases; in 2012 bore 10 cases and in 2013 bore 82 cases (Health District Sleman 2013). The four years of data states that Catur Tunggal sub district in Depok is the most affected by dengue in the Province of Yogyakarta. It shows the Caturtunggal sub district as dengue endemic area.

Moyudan district during 2010-2013 had 9 cases of dengue infection. In 2010 and 2013 Moyudan district was free from dengue. In 2011 there were 7 people and in 2012 there were 2 people infected with dengue. In 2011 and 2012 only one 1 case of dengue infection in umbersari subdistrict. It makes Summersari subdistrict as an area of sporadic dengue.

##### 4.1. The relationship between social economy and Free Larvae Index

Socioeconomic level seen in three areas which is education, employment and income. Based on Table 4.5 it can be seen that *p value* > 0.05 for the husband's education, wife education and income, which means there is no significant relationship. As for the husbands employment  $p = 0.000$  and 0.006 for wifes employment, which means there is a significant relationship between husband and wife employment with free larvae index. *r* value for husbands employment is 0,365 and *r* value for the wife's employment is 0,302. Correlation between employment with free larvae index are weak positive correlation . It means that the better of a job the higher of free larvae index. Conversely the lack of good jobs, the lower of free larvae index.

Results in Depok only husband's employment that has *p value* <0.05, which means there is a significant relationship between husband's employment with free larvae index. *r* value = 0.383, which means the relationship between husband's employment with free larvae index in Depok has a

weak strength. Correlation between husband's employment with free larvae index in Depok has weak positive relationship .

Results in District Moyudan only husband's employment that has a p value  $<0.05$ , which means there is a significant relationship between husband's employment with the number of free larvae index. r value = 0.357, which means the relationship between husband employment with free larvae index has a weak strength.

Socioeconomic level consists of education, employment and income in this study only employment that has a significant relationship. This is in line with the research that there is a significant relationship between employment and free larvae index in one of sub district in Semarang, Central Java with  $p = 0.012$  (Widagdo et al. 2008). Result of the research has contradictory with Haryadi et al. (2011) showed no association between employment and economic status with free larvae index. The study was conducted with 100 study subjects District Pekanbaru City. Monintja (2015) research also showed no significant relationship between employment and free larvae index  $p = 0.086$ .

#### **4.2. Relationship between Attitudes and Behaviour with Free Larvae Index**

Based on Table 4.5 it can be seen that the p value = 0.000, which means there is a significant relationship between attitudes and behavior with free larvae index. r value = 0.470, which defines the relationship between attitudes and behavior with free larvae index have the moderate strength power. Attitudes and behavior with free larvae index has moderate positive relationship means that the better of attitudes and behavior correlate with the higher numbers of free larvae index. Conversely the unfavorable attitudes and behavior correlate with the lower number of free larvae index.

The same results are shown in Depok with p value = 0,000 which means there is a significant relationship between attitudes and behavior with free larvae index. r value = 0.372, which implies the relationship between attitudes and behavior with free larvae index in Depok has weak positive correlation. Other research stated there was a significant relationship between attitude and behaviour with prevention and control of dengue vectors in Lahore and Rawalpindi, Pakistan (Hafiz 2012). Respondents using chemicals, beds net, mattresses and mosquito spray. Chanyasanha et al. (2015) research showed there is a significant relationship between attitudes with preventive behaviors associated with dengue infection housewives in Colombo, Sri Lanka.

Results in Moyudan Sub district has p value = 0,000 which means there is a significant relationship between attitudes and behavior with free larvae index. r value = 0.522, which means the relationship between attitudes and behavior with free larvae index has moderate strength. Attitudes and behavior with free larvae index is moderate positive relationship. The results are consistent with Santoso and Budiyanto (2008) research that there is a relationship between attitude with Dengue vector in Palembang, South Sumatera Province. Research conducted on 606 subjects in six villages with p value 0.005. Widagdo, et.al. (2008) research also showed significant association between mosquito nest eradication attitudes with mosquito density. In contrast to previous research studies Haryadi. (2011) showed no relationship between attitude with free larvae index ( $p = 0.226$ ).

### **5.CONCLUSIONS**

Attitude, behaviour and husbands employment are factors that have significant implication to prevent spreading of dengue infection. Free larvae index is one of the indicator that reflect transmission of dengue. That three factors in Depok and Moyudan sub district can improve the free larvae index indicator.

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