

# UNJA-10209-Article Text-29405-1-10- 20201119.pdf

## THE DIFFERENCES OF COMMUNITY KNOWLEDGE BETWEEN BEFORE AND AFTER HEALTH EDUCATION OF MALARIA

Isma Fadlilatus Sa'diyah<sup>1</sup>, Dyah Wulan Sumekar<sup>2</sup>, Tri Umiana Soleha<sup>3</sup>  
Betta Kurniawan<sup>4</sup>

<sup>1</sup> Faculty of Medicine, University of Lampung

<sup>2</sup> Department of Community Medicine, Faculty of Medicine, University of Lampung

<sup>3</sup> Department of Microbiology, Faculty of Medicine, University of Lampung

<sup>4</sup> Department of Parasitology, Faculty of Medicine, University of Lampung

e-mail [ismafs82@gmail.com](mailto:ismafs82@gmail.com)

### ABSTRACT

**Background:** Sukajaya Lempasing village is a malaria-endemic area with the increasing of Annual Parasitic Incident from 2015, which is 1.7 per 1,000 population to 2.2 per 1,000 population in 2016. The village has a higher Annual Parasite Incidence with a national Annual Parasite Incidence in Indonesia of 0.84 per 1,000 population. Various efforts have been made to prevent malaria, such as early diagnosis, prompt treatment, vector surveillance and control. However, the program has not been effective in reducing the number of malaria due to the lack of society's knowledge about Malaria.

**Methods:** This research uses the quasi-experimental method. The sampling technique is a total sampling. The study was conducted from April to June 2017, located in Sukajaya Lempasing Village, Pesawaran, Lampung. The samples obtained were 25 people. Data obtained from questionnaires.

**Results:** The results of univariate analysis obtained abnormal distribution data with the p-value of pretest = 0.03 and p posttest = 0.00. Because the data is abnormally distributed, the bivariate analysis of the non-parametric Wilcoxon test is used which shows the value of p = 0.00.

**Conclusion:** The conclusion of this research is the difference in knowledge about malaria before and after health education in the community of Sukajaya Lempasing Village.

**Keywords:** Malaria, Health Education, Knowledge.

### ABSTRAK

**Latar belakang:** Desa Suka Jaya Lempasing merupakan daerah endemis malaria dengan peningkatan Annual Parasite Incidence (API) dari tahun 2015 yaitu 1,7 per 1.000 penduduk menjadi 2,2 per 1.000 penduduk pada tahun 2016. Desa tersebut memiliki angka API lebih tinggi dibandingkan dengan API nasional di Indonesia yaitu 0,84 per 1.000 penduduk. Berbagai upaya pencegahan telah dilakukan antara lain, diagnosis dini, pengobatan cepat dan tepat, serta surveilans dan pengendalian vektor. Namun, program tersebut belum efektif mengurangi jumlah penderita malaria dikarenakan rendahnya pengetahuan masyarakat tentang malaria.

**Metode:** Penelitian ini menggunakan metode quassy experimental. Teknik pengambilan sampel adalah total sampling. Penelitian dilaksanakan periode April- Juni 2017, bertempat di Desa Suka Jaya Lempasing, Pesawaran, Lampung. Sampel yang berhasil didapatkan adalah 25 orang. Data diperoleh dari kuesioner pengetahuan.

**Hasil:** Hasil analisis univariat didapatkan distribusi data tidak normal dengan nilai p pre test=0,03 dan p post test=0,00. Karena dsitribusi data tidak normal, digunakan analisis bivariat uji non parametrik Wilcoxon yang menunjukkan nilai p=0,00.

**Kesimpulan:** Kesimpulan penelitian ini adalah terdapat perbedaan pengetahuan tentang malaria sebelum dan sesudah pendidikan kesehatan pada masyarakat Desa Suka Jaya Lempasing.

**Kata Kunci:** Malaria, Pendidikan Kesehatan, Pengetahuan.

## INTRODUCTION

Malaria is an infectious disease that can affect all people, both men, and women in all age groups of infants, children, and adults. Malaria is one of the society's health problems that can cause death, especially in high-risk groups, such as infants, children under five, pregnant women besides malaria can directly cause anemia and can reduce work productivity. According to the 2013 Basic Health Research, the prevalence of malaria in Indonesia reached 6.0 percent. The five provinces with the biggest incidence and prevalence were Papua (9.8% and 28.6%), East Nusa Tenggara (6.8% and 23.3%), West Papua (6.7% and 19.4%), Central Sulawesi (5.1% and 12.5%), and Maluku (3.8% and 10.7%). Fifteen of the thirty-three provinces have a malaria prevalence above the national rate, the majority are in East and West Indonesia. According to the District Health Office of Pesawaran District in 2015, the prevalence of malaria in Lampung Province is below the national average of 1.3% but in Pesawaran district there is one village with a malaria prevalence of 6.7% which exceeds the national average, such as Hanura. The number shows the high number of malaria cases in Indonesia so that this disease is still a society's health problem because it often causes extraordinary cases that have a wide impact on the quality of life and economy, and can result in death..<sup>1,2,3.</sup>

The efforts to reduce morbidity and mortality rates are carried out through malaria eradication programs whose activities include early diagnosis, fast and appropriate treatment, and vector surveillance and control in terms of society's education and understanding of environmental health, all of which are aimed at breaking the chain of malaria transmission. The

key to the realization of efforts to reduce the morbidity and mortality rates is the long-term sustainability of malaria eradication. It should be understood that malaria is the result of a very complex interaction between three biological factors including more than 30 species of *Anopheles* mosquitoes that act as parasitic vectors, as well as five *Plasmodium* species that infect humans, each of which has a complex life cycle, environment, habits, and pathogenesis profile.<sup>5</sup>

Besides being caused by the three complex of biological factors, the spread of malaria is also influenced by knowledge, attitudes, and behavior. Low society's knowledge about the causes, transmission, and prevention of malaria greatly affects the spread of the disease. The compliance of malaria sufferers in taking medicine also needs to be improved. Low society's knowledge can affect the delay in efforts to diagnose and treat malaria. Then the behavior of people who are often outside the house at night, bathing in the early evening, sleep without using a mosquito net, seeking treatment to a shaman and irrational treatment will support the ongoing transmission of malaria.<sup>6</sup>

Based on this explanation, it can be seen that sustainable malaria control must be seen as a long-term effort focused on reducing malaria-related mortality through an integrated and creative transdisciplinary approach that ultimately contributes to malaria elimination and eradication. Community involvement, education, and sustainable management of malaria cases are essential for the implementation of a transdisciplinary vector control program. Community involvement in efforts to eradicate

malaria can be incorporated into five levels of prevention which include health promotion, general and special protection, early diagnosis and appropriate treatment, disability restrictions, and rehabilitation.<sup>5</sup>

To optimize the role and involvement of the community in eradicating malaria in the village of Sukajaya Lempasing, the district of Teluk Pandan, Pesawaran district, a BOM agent has been formed, a group of people who are equipped with knowledge and skills based on five level prevention. BOM agents are given counseling about general malaria knowledge. This study aims to determine differences in knowledge before and after malaria health education in the Suka Jaya Lempasing Village community.

## METHODS

<sup>12</sup> This type of research is a quasi-experiment design with a one-group pretest-posttest design. In this type of research, the sample will be given a pretest to find out the initial condition, after that treatment will be given, in this case, we give a health education, and after the treatment, the sample will be given a posttest. The research location is in Suka Jaya Lempasing Village with 25 samples taken by total sampling.

Statistical analysis to process the data obtained will use a computer program, there will be 2 kinds of data analysis, such as univariate analysis, and bivariate analysis.<sup>6</sup> Univariate analysis is used to describe the characteristics

of independent and dependent variables. All data in the questionnaire are processed and presented in the form of a frequency distribution table. Bivariate analysis is an analysis used to determine the relationship between independent variables and dependent variables using statistical tests. A normality test is performed to determine the distribution of data whether normal or not. The data normality test is in the form of the Shapiro Wilk test because of the sample size in the study <50. Then, the statistical test used is the paired t-test, a parametric test (normal data distribution) that is used to find the relationship between two or more variables if the data is in the form of a numerical scale, but if the data distribution is not normal, the Wilcoxon test can be used.

## FINDINGS AND DISCUSSION

### Findings

#### A. Respondent Characteristic Data

The study was conducted in conjunction with a devotion program from <sup>16</sup> the Faculty of Medicine, University of Lampung. This research was conducted in April-June 2017 at the Village Hall of Sukajaya Lempasing, Teluk Pandan District with 25 respondents representing the total number of BOM agents. The data of this study were obtained from direct research results through filling out questionnaires before and after health education. From the observations obtained data include the characteristics of respondents through age, gender, education, and occupation. Respondent characteristics data are as follows:

**Age of Respondents**

**Table 1 .** Characteristic Frequency Distribution of BOM Agent Respondents (N = 25)

| Variable           | Frequency (n) | Percentage (%) |
|--------------------|---------------|----------------|
| <b>Age (years)</b> |               |                |
| 17-25              | 3             | 12             |
| 26-35              | 8             | 32             |
| 36-45              | 9             | 36             |
| 45-50              | 5             | 20             |
| <b>Gender</b>      |               |                |
| Male               | 8             | 32             |
| Girl               | 17            | 68             |
| <b>Education</b>   |               |                |
| Middle School      | 9             | 36             |
| High school        | 14            | 56             |
| University         | 2             | 8              |
| <b>Profession</b>  |               |                |
| Work               | 21            | 84             |
| Does not work      | 4             | 16             |
| <b>Total</b>       | <b>25</b>     | <b>100</b>     |

Table 1 shows that in the age variable, most respondents were 36-45 years old with 9 respondents (36%). In the gender variable, the female population is more dominant than the male. Seen in Table 1, the majority of respondents were female as many as 17 people (68%). At the education level variable, it is known that most respondents were educated last graduated from high school 14 people (56%). In the work variable, respondents are categorized as working and not working. In table

1 the results of the work characteristics of respondents were 12 people (84%).

**B. Univariate Analysis**

The normality test used in data analysis is the Shapiro Wilk test because the study sample numbered 19 (less than 50). The results of the normality test include knowledge before and after health education. Data is said to be normally distributed if  $p > 0.05$ .<sup>7</sup>

**Table 2 .** Data Normality Test Results Before and After Health Education

| Variable           | p value |
|--------------------|---------|
| Pretest Knowledge  | 0.003   |
| Knowledge Posttest | 0,000   |

18  
Based on table 2. It is known that the pre-test and posttest values of knowledge (p <0.05), so that the data are not normally distributed. If the data is not normally distributed then a data transformation test is performed. In the data transformation test results into Logarithm 10, obtained abnormal data results (p

<0.05). The abnormal results of the data can be caused by the data not being homogeneous and having extreme values.<sup>8</sup> The calculation results of the variables in table 2 are stated in median values, minimum values and maximum values because the data are not normally distributed.

**Table 3 . Value pre-test and post-test knowledge**

|                    | Median | Min  | Max |
|--------------------|--------|------|-----|
| Pretest Knowledge  | 66.7   | 50   | 100 |
| Knowledge Posttest | 100    | 66.7 | 100 |

In table 3, it is known that the lowest value obtained by participants at the pretest is 50 with a median value of 66.7 and the highest value of 100. At the post-test, the lowest value obtained is 66.7 with a median and the highest value of 100. Besides expressed in quantitative data, a

person's level of knowledge can be known and interpreted with a qualitative scale that is, good (76% - 100%), sufficient (56% -75%) and less (<56%).<sup>9</sup> The level of knowledge of BOM agents before education can be seen in table 4.

**Table 4 . Level of Knowledge Before and After Education with BOM Agents**

| Variable                | Amount (n) | Percentage (%) |
|-------------------------|------------|----------------|
| <b>Before Education</b> |            |                |
| Good                    | 8          | 32             |
| Enough                  | 10         | 40             |
| Less                    | 7          | 28             |
| <b>After Education</b>  |            |                |
| Good                    | 24         | 96             |
| Enough                  | 1          | 4              |
| Less                    | -          | -              |

Based on table 4, it can be seen that before malaria health education is given, there were 7 people (28%) lacking knowledge and 10 people (40%) having sufficient knowledge and 8 people (32%) having a good knowledge and after the malaria health education is given, there was 1 person (4% ) who has enough knowledge and 24 people (96%) have good knowledge.

the increase in knowledge that has been given to BOM agents. The data analysis used if in this study the data were normally distributed using paired t-tests. However, when tested for normality using Shapiro Wilk the data is not normally distributed, as well as after the data transformation. So the analytical test used is the Wilcoxon non-parametric test.<sup>10</sup> The results obtained after performing data analysis using Wilcoxon can be seen in Table 5.

**C. Bivariate Analysis**

Measurement of BOM agent knowledge before and after health education is done to see

**Table 5 . related-samples Wilcoxon**

| Pretest Median | Posttest Median | p value |
|----------------|-----------------|---------|
| 66.7           | 100             | 0.00    |

Based on table 5, it can be seen that there are differences in knowledge before and after malaria health education obtained p-value

<0.00 which indicates there are significant differences between before and after health education about malaria.

## Discussion

### A. Respondent Characteristic Data

Based on the results of this study, it can be seen that most of the respondents are between 36-45 years old with 9 respondents (36%). This is in accordance with the requirements of the productive age, which is between 18-64 years. Age affects productivity so that it can achieve the goals of an organization. In addition, age affects a person's comprehension and mindset. The more a person ages, the more his comprehension and mindset will develop so that the knowledge he gets better.<sup>11</sup>

In the gender variable, it is known that the female population is more dominant than males. Based on the analysis of researchers that the female population is more dominant than men to attend the meeting program held in the area. In addition, the majority of men in the area work, and it is difficult to attend group meetings.

In the education level variable, it was found that the education level of most respondents was the last educated high school graduate of 14 people (56%). The results of the scores before health education at each meeting were categorized as good, sufficient, and lacking. The good and fairly dominated categories are graduated from S1 and high school graduations while the category is less dominated by respondents with junior high school education. The higher the level of education, the greater the knowledge and the easier it is to develop knowledge and technology that have an impact on improving one's well-being. Respondent's jobs are categorized as working and not working. In table 5 the results obtained from the work characteristics of respondents working as many as 12 people

(84%). Research respondents were predominantly employed compared to non-working respondents.

The results of the analysis before health education on malaria obtained data that before malaria health education was conducted there were 7 people (28%) lacking knowledge, people (40%) having sufficient knowledge, and 8 persons (32%) having good knowledge. This is due to the lack of information regarding malaria clearly and completely. A piece of information can be obtained through printed media, electronic media, and health education to health workers.<sup>11</sup> Meanwhile, the results of the analysis after health education on malaria obtained data that there was 1 person (4%) who has sufficient knowledge and 24 people (96%) who have good knowledge. This shows that there is a significant increase in society's knowledge. Knowledge is the result of knowing that occurs after someone senses a certain object. Sensing occurs through the five human senses such as smell, sight, hearing, feeling, and touch. Most of the sensing is obtained from the eyes and ears. Knowledge generally comes from experience and information conveyed by teachers, parents, friends, and the mass media.

Based on the results of the study note, that there are differences in knowledge before and after malaria health education with the p-value = 0.00 which indicates that there are significant differences between before and after health education about malaria. The results of the analysis of the median value of knowledge about malaria showed a significant difference (P-value <0.05) between before and after health education. The median value of society's knowledge before and after health education about malaria is 66.7 to 100.

According to Notoatmodjo (2003) factors that influence a person's level of knowledge consist of internal factors such as age, education, work, and external factors such as the environment and social culture. Another supporting factor is the education of BOM agents who at least graduate from junior high school will facilitate the information retention process. Employment was dominated by respondents who did not work in both of these studies. External factors that affect the environment and social culture. BOM agents have a desire to develop and an open attitude towards information. This includes socio-cultural factors that influence knowledge. The health education process uses methods and media as a means of delivering messages and health information. Its function is to instill new knowledge, opinions, concepts, and habits.<sup>12</sup>

Lecture, simulation, and demonstration methods in health education at BOM agents support the portrayal of the process of occurrence of events so that they can be better understood in fact, this is the following research.<sup>13</sup> The lecture method has advantages that can be applied to both highly educated and low-educated targets, this is following Sukajaya Lempasing villagers who have variations in educational levels.

### CONCLUSION

There is a significant difference between the knowledge of the Suka Jaya Lempasing Village community before and after malaria health education with p-value (0,000) <  $\alpha$  (0.05). It is recommended that further research be carried out regarding the relationship of knowledge with people's attitudes and behavior and their effects on malaria rates.

### REFERENCES

1. Kementerian Kesehatan Republik Indonesia. Riset Kesehatan Dasar. Jakarta: Badan Penelitian dan pengembangan kesehatan. 2013.
2. Dinas Kesehatan Kabupaten Pesawaran. Profil Kesehatan Kabupaten Pesawaran 2015. Pesawaran: Dinas Kesehatan Kabupaten Pesawaran. 2016.
3. Tengah D. Profil kesehatan. Kendari: BAPEDDA. 2009.
4. Kementerian Kesehatan Republik Indonesia. Pedoman Penatalaksanaan Kasus Malaria di Indonesia. Jakarta: Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan. 2008.
5. Birkholtz M, Bornman R, Focke w, Mutero C, and Jager CD. Sustainable malaria control: transdisciplinary approaches for translational applications. *Malaria Journal*. 2012; 11(1): 431-42.
6. Ningsi J, Maksud M. Studi Pengetahuan, Sikap dan Perilaku Penderita Malaria pada Daerah Perkebunan Coklat di Desa Malino Kecamatan Marawola Kabupaten Donggala, *Jurnal Vektor Penyakit*. 2009; 3(1): 15–24.
7. Dahlan SM. Statistik untuk kedokteran dan kesehatan. Edisi ke-5. Jakarta: Salemba Medika. 2011.
8. Ghazali I. Aplikasi analisis multivariate dengan program SPSS. [Tesis]. Semarang: Universitas Diponegoro. 2011
9. Arikunto S. Prosedur Penelitian Pendekatan Praktik. Jakarta: Rineka Cipta. 2006.
10. Dahlan SM. Besar sampel dan cara pengambilan sampel dalam penelitian kedokteran dan kesehatan. Edisi 3. Jakarta: Salemba Medika. 2010.
11. Notoatmodjo S. Pendidikan dan perilaku kesehatan. Jakarta: Rineka Cipta. 2003.
12. Notoatmodjo S. Promosi kesehatan dan perilaku kesehatan. Jakarta: Rineka Cipta. 2012.
13. Sagala S. Konsep dan Makna Pembelajaran. Bandung: Alfabeta. 2010.



18%

SIMILARITY INDEX

---

PRIMARY SOURCES

---

- 1** [www.gssrr.org](http://www.gssrr.org) 106 words — 3%  
Internet
- 2** Yustina PM Paschalia, Anatolia K. Doondori, Irfan Irfan, Norma Tiku Kambuno. "Behavior of the Use of Mosquito Net as a Prevention of Malaria in Ondorea Village, Nanga Panda Sub-district", Open Access Macedonian Journal of Medical Sciences, 2021 52 words — 2%  
Crossref
- 3** [malariajournal.biomedcentral.com](http://malariajournal.biomedcentral.com) 48 words — 2%  
Internet
- 4** [id.123dok.com](http://id.123dok.com) 35 words — 1%  
Internet
- 5** Ade Triajayanti, Jhons Fatriyadi Suwandi, Betta Kurniawan, Nurul Utami. "Identification of Plasmodium Falciparum Merozoit Surface Protein-1 (PFMSP-1) Gene From Malaria Patients in Hanura Area, Lampung, Indonesia", Bioscientia Medicina : Journal of Biomedicine and Translational Research, 2019 33 words — 1%  
Crossref
- 6** H Pradiko, S Wahyuni, W A Ganiy. "Knowledge-attitude-practice method analysis as a guide for Kasomalang Kulon Village waste bank planning", IOP Conference Series: Earth and Environmental Science, 2021 33 words — 1%

- 
- 7 Hasritawati, Barirah Madeni. "Relation of Normal Childbirth Care Training to Midwives Knowledge and Attitudes at Bebesen Health Center Bebesen District of Central Aceh Regency in 2021", *Bioscientia Medicina : Journal of Biomedicine and Translational Research*, 2021  
31 words — 1%  
Crossref
- 
- 8 Priyo Mukti Pribadi Winoto, Difran Nobel Bistara. "THE EFFECT OF THE FIRST AID SOCIALIZATION IN ACCIDENTS TO INCREASING YOUTH SKILLS IN HANDLING EMERGENCIES IN DAILY LIVING", *Nurse and Health: Jurnal Keperawatan*, 2019  
29 words — 1%  
Crossref
- 
- 9 [www.researchsquare.com](http://www.researchsquare.com)  
Internet  
23 words — 1%
- 
- 10 [media.neliti.com](http://media.neliti.com)  
Internet  
18 words — 1%
- 
- 11 [pt.scribd.com](http://pt.scribd.com)  
Internet  
13 words — < 1%
- 
- 12 [www.er-journal.com](http://www.er-journal.com)  
Internet  
13 words — < 1%
- 
- 13 Fathorrahman Fathorrahman, Ratna Wardani. "Health Belief Theory of Knowledge Model and Drinking Behavior by Providing Education in Tuberculosis Patients in the Work Area of the Batang-Batang Health Center", *Journal for Quality in Public Health*, 2021  
11 words — < 1%  
Crossref
- 
- 14 [ijisrt.com](http://ijisrt.com)  
Internet  
11 words — < 1%
-

|    |   |                 |
|----|---|-----------------|
| 15 | <a href="http://ridwanamiruddin.wordpress.com">ridwanamiruddin.wordpress.com</a><br>Internet  | 11 words — < 1% |
| 16 | <a href="http://ubb.ac.id">ubb.ac.id</a><br>Internet  | 11 words — < 1% |
| 17 | <a href="http://garuda.ristekbrin.go.id">garuda.ristekbrin.go.id</a><br>Internet  | 9 words — < 1%  |
| 18 | <a href="http://publichealthinafrica.org">publichealthinafrica.org</a><br>Internet  | 9 words — < 1%  |
| 19 | Bayu Wiyantoko, Tri Esti Purbaningtias, Puji Kurniawati. "Determination of ash content in coal using in-house reference materials", AIP Publishing, 2018<br>Crossref  | 8 words — < 1%  |
| 20 | Susi Widiawati, Basok Buhari, Rian Maylina Sari, Valentino Febliandika. "The Relationship Between Preceptor Role and Student Knowledge with Triage Skills in Emergency Department", KnE Life Sciences, 2021<br>Crossref | 8 words — < 1%  |
| 21 | <a href="http://journal.ugm.ac.id">journal.ugm.ac.id</a><br>Internet  | 8 words — < 1%  |
| 22 | <a href="http://repository.poltekeskupang.ac.id">repository.poltekeskupang.ac.id</a><br>Internet  | 8 words — < 1%  |
| 23 | Lyn-Marie Birkholtz, Riana Bornman, Walter Focke, Clifford Mutero, Christiaan de Jager. "Sustainable malaria control: transdisciplinary approaches for translational applications", Malaria Journal, 2012<br>Crossref   | 7 words — < 1%  |

EXCLUDE QUOTES ON  
EXCLUDE BIBLIOGRAPHY ON

EXCLUDE MATCHES OFF