Knowledge on malaria among workers in a Central Sulawesi district

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Abstrak

Latar belakang: Malaria merupakan penyakit endemik di Indonesia. Penyakit ini dapat menyerang siapa saja, termasuk pekerja, yang dampaknya menurunkan produktivitas.Untuk mencegah penyakit malaria dibutuhkan pengetahuan pekerja yang baik tentang penyakit ini. Tujuan penelitian ini untuk mengidentifikasi tingkat pengetahuan malaria pekerja dan faktor yang berhubungan.

Metode: Studi potong lintang menggunakan data dari The Malaria Problem In 3 Subdistricts of Banggai Regency: an Epidemiological Study. Populasi studi tersebut adalah pekerja dewasa (non konstruksi) dan pekerja konstruksi suatu perusahaan migas di suatu kabupaten di Sulawesi Tengah, Indonesia pada tahun 2013. Subyek terdiri dari pekerja yang dipilih secara purposif. Pengumpulan data dilakukan dengan wawancara langsung pada 5-12 September 2013. Analisis data dengan regresi Cox dengan waktu yang konstan menggunakan Stata versi 9.0.

Hasil: Jumlah subyek sebanya 125 orang (55 non konstruksi and 70 konstruksi), 62.7% di antaranya pekerja dengan pengetahuan malaria baik. Faktor yang dominan adalah umur dan transportasi. Subyek yang bermur 41-65 tahun dibandingkan dengan yang lebih muda mempunyai 34% lebih baik pengetahuan malaria [risiko relatif (RRa) = 1,34; 95% interval kepercayaan (CI) = 0,99-1,80). Di samping itu, subyek yang menggunakan transportasi kendaraan ke tempat kerja dibandingkan yang jalan kaki mempunyai 2,1 kali lebih baik pengetahuan malaria (RRa = 2,1; 95% CI = 1,22-3,60).

Kesimpulan: Subyek yang berumur lebih tua atau yang menggunakan kendaraan ke tempat kerja mempunyai pengetahuan malaria yang lebih baik. (Health Science Journal of Indonesia;2015;1:38-42).

Kata kunci: malaria, pengetahuan, pekerja

Abstract

Background: Malaria is an endemic diasease in Indonesia. This disease can be transmitted to anyone, including workers, which decreasing productivity. To prevent malaria good knowledge on malaria is needed. The purpose of this study was to identify related risk factors related to malaria knowledge among workers.

Methods: This study used part of data from the Malaria Problem in 3 subdistricts of Banggai Regency, Central Su;awesi, Indonesia in 2013. The subjects were purposively selected adult non construction workers and construction workers. Data collection were conducted in September 5-12, 2013. Data analysis by Cox regression with constant time using Stata version 9.0.

Results: The were 125 workers (70 construction and 55 non construction workers). Those with good knowledge on malaria were 62.7%. Age and the type of transportation used were dominant risk factors related to knowledge on malaria. Compared to the younger workers, 34% of those aged 41-65 years had good knowledge on malaria [adjusted relative risk (RRa) = 1.34; 95% condidence interval (CI) = 0.99-1.80). Furthermore, those using vehicles to the workplace had 2.1-fold had better knowledge on malaria (RRa = 2.10; 95%CI = 1.22-3.60) compared to those walking to the workplace.

Conclusion: Older workers and workers using vehicles to the workplace had better knowledge on malaria. *(Health Science Journal of Indonesia;2015;1:38-42).*

Keywords: malaria, knowledge, workers

Malaria is one of the prevalent endemic diseases in Indonesia. The impact of malaria diseases is mortality, morbidity, and decreasing productivity among workers.[1] Malaria knowledge among the workers, especially workers who work in the endemic area are not much studied in Indonesia. Knowledge about the disease is very important to enable prevention of diseases such as malaria[1]

Malaria has always been a public health problem in the Banggai district. In 2012, according to the District Health Office report, the number of Malaria cases found was 13843, so that the incidence rate of Clinical Malaria was 40.1/1000. The highest incidence rate was found in the Toili sub district (97.7/1000) and the lowest in the Balantak Utara sub district (5.4/1000), which was still 5 times higher than the national target of < 1/1000 population.[2-4] A study in Sukabumi, West Java, found a high number of mining workers suffered from malaria.[5] In the last few years, natural resources was found in Banggai, so many skilled laborers from outside Banggai currently worked there. They have to be educated and prepared to be able to do prevention measures for malaria.

The factors that can be related to malaria knowledge of a worker were age, gender, level of education, occupation, travel duration from home to the workplace, previous living area, and malaria information source.[6,7] Age, level of education, office job and education for the health workers were other factors that was hoped to further improve the workers' knowledge about malaria prevention. The aim of this study was to identify the level of knowledge on malaria among workers, which will enable them to prevent malaria.

METHODS

This study used part of the data from the Malaria Problem in 3 Subdistricts of Banggai Regency: an Epidemiological Study, conducted by the Departement of Community Medicine Faculty of Medicine, Universitas Indonesia in 2013.

The study was conducted in three purposively selected sub-districts in Central Sulawesi, Indonesia. Field data collection was conducted from 5th – 12th of September 2013.

Based on data of malaria problems, 3 sub-districts, which was located in the south-western part of Banggai district in Central Sulawesi, were selected. These sub-districts selected have about the same

size population, which were 13741, 15251, 14496 respectively. The populations were children (10–16 years/elementary to junior high school), adults who, and a special group of migrant contract workers who live together the village in rented buildings.[3]

Sample selection malaria problem survey used multi staged method, nine villages were selected as clusters from the 3 sub-districts.[3]

The exclusion criteria were children (below 18 years). The subject were all workers living in the three selected sub-districts and a special group of migrant contractor workers who live together in village in Central Sulawesi. Sampling method used purposive sampling from 3 sub-districts.

The instrument for assessing malaria kowledge was a multiple-choice questionnaire in Bahasa Indonesia. This multiple-choice questionnaire was translated and modified from one previously developed by Ahmed *et al.*[8] The questionnaire was validated before use. There were 10 questions: (1) malaria diseases; (2) signs and symptoms of malaria, (3) malaria vectors; (4) mosquito breeding in home; (5) mosquito breeding outside; (6) prevention of malaria in home, (7) prevention malaria outside; (8) source of malaria information; (9) what to do if someone had malaria; and (10) company participation/regulation. Each question had 3-4 item of choices including one correct answer. A worker was considered to have poor knowledge if he/she had less than 4 correct answers, while good knowledge was if he/she had 4 or more correct answers.

Furthermore, classification of the other risk factors were: gender (male and female), level of education (formal education: medium and high education), occupation (construction = migrant contractor workers who live together in village; non construction = office worker, farmer, fisherman, teacher, salesman, and food vendor), travel duration from home to the workplace (less or more than 30 minutes), previous living area (endemic and non-endemic area), source of malaria information (media/others and health providers), age (less 40 years, and more than 40 years), and transportation to the workplace (walking and using automobile/motorcycle).

This study was approved by the Banggai Distric Government, Central Sulawesi Province, Indonesia. Data were analyzed by Relative Risk using Stata version 9.[9]

RESULTS

There were 125 workers participating in this study, consisting of 70 construction and 55 non-construction workers. Most of the workers (62.7%) had good knowledge on malaria. More males than female had good malaria knowledge, and most of the workers had medium and high level of education. In addition most of them were construction workers.

In general, poor and good malaria knowledge among workers were similarly distributed with respect to gender, level of education, duration from home to workplace, and source malaria information. However, construction workers rather than non-construction workers and those who previously lived in non endemic living areas were more likely to have better knowledge on malaria.

Table 2 showed that age and transportation to workplace were the dominant risk factors related to malaria knowledge.

Table 1. Several sociodemographic characteristics and the risk of malaria knowledge

	Malaria knowledge				Crude Relative Risk	95% Confidence Interval	P
	Poor (n=47)		Good (n=78)				
	n	%	n	%			
Gender							
Female	17	40.5	25	59.5	1.00	Reference	
Male	30	36.1	53	63.9	0.93	0.58-1.50	0.772
Level of education							
Low	21	58.3	15	41.7	1.00	Reference	
Medium and high	26	31.3	63	68.7	1.23	0.75-2.01	0.421
Occupation							
Non construction	27	43.4	28	56.7	1.00	Reference	
Construction worker	20	30.6	50	69.4	1.40	0.88-2.23	0.151
Duration from home to workplace							
1-30 minutes	46	38.0	75	62.0	1.00	Reference	
31-60 minutes	1	25.0	3	75.0	0.83	0.26-2.62	0.776
Previous living area							
Endemic area	22	41.5	31	58.5	1.00	Reference	
Non endemic area	25	34.7	47	65.3	1.48	0.93-2.37	0.097
Source malaria information							
Media and others	22	41.5	31	58.5	1.00	Reference	
Health provider	25	34.7	47	65.3	1.12	0.71-1.76	0.635

Table 2. Dominant factors related to knowledge on malaria

	Malaria knowledge				Adjusted Relative Risk*	95% Confidence Interval	P
	Poor (n=47)		Good (n=78)				
	n	%	n	%			
Age							
17-40 ys	25	51.0	24	49.0	1.00	Refernce	
41-65 ys	22	28.9	54	71.1	1.34	0.99-1.80	0.058
Transportation							
Walking to workplace	19	67.9	9	32.1	1.00	Reference	
Using vehicle	28	28.9	69	71.1	2.10	1.22-3.60	0.007

*Adjusted to each other between risk factors listed in this Table

In terms of age, workers aged 41-65 years compared to those aged 17-40 years had 34%, a higher chance to have good knowledge on malaria. Furthermore, those who had transportation compared to those who walked to the workplace had a 2.1-fold to have good knowledge on malaria.

DISCUSSIONS

This study has several limitations, among others, this study was conducted in limited areas, which were the 3 sub-districts, and limited sample of workers.

This study revealed that older age had better knowledge on malaria. While, in Bangladesh no association found between age and level of malaria knowledge.[8] Banjerjee found that most of the construction workers were aged 20-30 years (69%).[10]

This study found most workers walked to the workplace, which was similar to a study by Sanjana *et al.* in a district of Java. This study noted that most of the respondents walked to the workplace.[11] This may be due to migrant workers who came from other areas, and looked for living quarters nearby.

This study also noted that those who used transportation had better knowledge on malaria (RRa=2.1, 95% CI = 1.22–3.60).

Furthermore, this study noted that 62.4% workers had good knowledge on malaria. This was lower than the malaria knowledge among in a community-based study in Swaziland, which noted that 99.7% subjects had good knowledge about malaria prevention, and 99.7% had good knowledge about malaria treatment.[12] Another study in India, the Kolar study, showed that public knowledge about malaria were 78% out of 371 respondents.[6] The results of this research did not differ from a study conducted in Zimbabwe which found 57.9% to 75.9% people knew about malaria.[13]

In this study most subjects were male (66.4%) which is almost the same as in Banjerjee, India were 73% respondents were male.[10]

This study also noted that gender was not associated with malaria knowledge of workers (p = 0.772). This finding was similar with the result obtained by Mahesh in Kolar, India.[6] These results were also in line with the results obtained in a study by Bashar in Bangladesh, which also found no association between gender and malaria knowledge among the workers.[7]

In this study, 56% subjects were construction workers while the rest were working in various sectors, such as trading, fishery, and offices. Bashar in Bangladesh also noted 31.1% of subjects were fishermen and 22.9% did housework, and found that there was no difference in malaria knowledge between the types of jobs and location of endemic malaria.[7] Furthermore, the Kolar study and the Mahesh study discovered that types of occupations and gender were not associated with knowledge about malaria.[6]

In terms of distance from home to the workplace, this study found that most workers walked to their workplace in less than 30 minutes. This may be due to the proximity of living quarters provided by the company for the migrant workers or the rooms rented by the workers.

Most of the workers of this study came from non-endemic areas, they must have been prepared by their companies about living in malaria endemic area, but only a third had good knowledge. Even in those who used to live in endemic areas, only 41.5% had good knowledge about malaria, so no statistical difference could be found. The study in Bangladesh also found no meaningful difference between respondents who live in areas of high malaria endemic area with non-endemic malaria.[8]

Lastly, this study found that 57.8% of the source of information on malaria came from health workers, but no association could be found between the source of information on malaria and the level of knowledge (p = 0.635). While the Kolar study in India found that only 34% received information about malaria from health workers.[6] A study in Zimbabwe found that health workers as source about malaria amounted to 72.9% .[13]

In conclusion, subjects who was older and who using vehicles to the workplace had better knowledge on malaria.

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