

Parental knowledge, attitude and practice on malaria in Mandailing Natal district

Syafruddin Haris, Sri Sofyani, Bidasari Lubis, Munar Lubis, Syahril Pasaribu, Iskandar Z. Lubis

Abstract

Background Malaria is still considered to be an important health problem in Indonesia. Malaria has been found in islands with different degree of endemicity. Behavior of the community is one of the factors affecting the incidence of malaria in Mandailing Natal district.

Objective To know the parental knowledge, attitude, and practice among parents whose children suffered from malaria or not.

Methods A cross sectional study was conducted in six primary schools and one health centre in October 2004. Subjects were parents whose children were malaria positive and malaria negative based on laboratory examination. Sample size was 85 parents for each group. Selected respondents were interviewed using structured questionnaire. Degree of knowledge, attitude, and practice on malaria were established using scoring system within three categories: good, less, and poor. Data were collected and presented using chi-square and $P < 0.05$ was considered as a level of significant.

Results The mean age of 85 parents whose children were positive malaria, was 38.47 years (SD 6.67) and the mean age of those whose children were negative malaria was 40.41 years (SD 8.05). Parent's education level was 62.9% primary school and 90% of their children were school-aged. There were significant differences on parental knowledge, attitude and practice in each group ($P < 0.05$). There was also a significant correlation between occupation and knowledge, but not between parental education level and parental age. Parental knowledge and attitude on the incidence of malaria in Mandailing Natal district were good, though their practice were poor.

Conclusion There are significant differences on parental knowledge, attitude and practice, between parents whose children were positive and negative for malaria. [Paediatr Indones 2007;47:161-165].

Keywords: Malaria, parental knowledge, attitude, practice

Malaria is still considered to be an important public health problem in Indonesia. In 1998, annual parasite incidence (API) on Java and Bali was approximately 0.12%-9.97%, and annual malaria incidence outside Java and Bali was approximately 3% (in Aceh) to 16.81% (in East Nusa Tenggara).¹

Morbidity rate of this disease is still high. North Sumatera is a province in Indonesia, outside Java and Bali, which is endemic for malaria. The distribution of malaria in North Sumatera is in the east and west coast. Malaria is rarely found in high altitude.^{2,3} Azlin *et al*³ found that of 255 blood tests taken from people with fever and chills in Panyabungan district, 104 of them were found to be malaria positive.

Knowledge is a capacity to acquire, retain and use information; a mixture of comprehensive, experience, discernment and skills. Attitude is an inclination, to react in a certain way and in certain situations; to see and interpret events according to certain predispositions; or to organize opinion into coherent

Presented at KONIKA XIII, Bandung, July 4-7, 2005.

From the Department of Child Health, Medical School, North Sumatra University, Medan, Indonesia.

Reprint requests to: Syafruddin Haris, MD, Department of Child Health, Medical School, North Sumatra University, H. Adam Malik Hospital, Jl. Bunga Lau No.17, Medan. Telp/Fax. 62-61-8361721. E-mail: bikafkusu@telkom.net.

and interrelated structures. Practice means an application of rules and knowledge that leads to action.⁴

Arsin *et al*⁵ also studied about the incidence of malaria in Kapoposang Island, a Pakajene District in South Sulawesi. Significant differences were found between knowledge, attitude, and practice and malaria incidence, and only 57.2% had good knowledge about malaria.

The perception of community related to causation, transmission, prevention and treatment are the main socio-cultural factors that can influence malaria control. The success of malaria control program at the moment are mostly rely on community perceptions and practice on the transmission, treatment and control of the disease.^{6,7}

The purpose of this study was to assess parental knowledge, attitude and practice regarding malaria incidence in Mandailing Natal district and to compare them between parents whose children were positive and negative for malaria.

Methods

This cross sectional study was conducted in October 2004. Respondents were parents of children in six primary schools and one health centre in Mandailing Natal district that had been collected and examined previously for thin and thick blood smear to find malaria parasites. Selected respondents were interviewed with structured questionnaire. By using the formula, sample size calculated were 81 for each group (95% confidence interval, 57% estimation of the proportion with 15% differences and 80% power).⁸

Inclusion criteria were parents of children who underwent malaria examination, lived in Panyabungan, Mandailing Natal district, and were agree to participate. Exclusion criteria were parents who failed to complete the study. Evaluated variables were independent variable (age, occupation, and educational level of the parents) and dependent variables (knowledge, attitude, and practice regarding malaria).

The degree of knowledge, attitude and practice regarding malaria were established using scoring system within three categories: good, less, and poor. For **knowledge**: total question was 10 and total score of 30. The criteria: If the answer was 1, the score was 3

(three), if the answer was 2, the score was 2 (two), if the answer was 3, the score was 1 (one), and if the answer was 4, the score was 0 (zero). For **attitude and practices**: total question was 10 with total score of 30. The criteria: if the answer was 1 (yes), the score was 3 and if the answer was 2 (no), the score was 0. Based on the total score of the knowledge, attitude and practice, there were three categories: **Good**, if the correct answer was >75% or score >23 out of 10 questions. **Less**, if the correct answer was between 45%-75% or score 14-23 out of 10 questions. **Poor**, if the correct answer was <45% or score <14 out of 10 questions.⁹ Data were collected and presented qualitatively using Chi-square test and $P < 0.05$ as the level of significant. Data were analyzed using SPSS version 10.0.

Results

Table 1 shows the characteristic of samples. Respondents were parents whose children positive or negative for malaria. Mean of parents whose children were malaria positive were 38.47 years old (SD 6.67) and those whose children were malaria negative were 40.41 years old (SD 8.05). The number of mother and father whose children were malaria positive was 70.6% and 29.4%, respectively. While of those whose children were malaria negative was 48.8% and 72.9%, respectively. Distribution of the number of parents by age showed that 63.5% parents whose children were malaria positive and 70.6% parents whose children were malaria negative were older than 35 years old. The most common educational level among parents whose children were positive malaria and malaria negative was primary schools (51.8% and 74.1%, respectively). The most common profession of respondents was farmer, 61.2% of them had children with positive malaria and 72.9% had children with negative malaria. The highest distribution of children age among parents whose children were positive malaria and negative malaria were >5 years (82.4% and 97.6%, respectively). There were significant differences between the two groups in terms of knowledge, attitude and practice of malaria (**Table 2**). The correlation between educational level and parents' knowledge, attitude and practice is shown in **Table 3**. There were no significant difference between those factors ($P > 0.05$).

Table 1. Characteristics of samples

Characteristics	Parents of Children with Malaria Positive		Parents of Children with Malaria Negative	
	n	%	n	%
Sex				
Boys	25	29	62	73
Girls	60	71	23	27
Age (years)				
20 – 35	31	37	25	29
>35	54	63	60	71
Education levels				
Primary School	44	52	63	74
Junior High School	18	21	12	14
Senior High School	15	18	8	9
Academy/University	8	9	2	2
Occupation				
Jobless	9	11	1	1
Farmer	52	61	62	73
Employee	11	13	1	1
Merchant	13	15	21	25
Child age (years)				
0-1	3	4	1	1
1-5	12	14	1	1
>5	70	82	83	98

There were no significant differences either between parents age and knowledge, attitude, and practice toward malaria ($P>0.05$) (Table 4). The correlation between parents occupation and parental knowl-

edge, attitude and practice toward malaria is shown in Table 5. There were significant differences between parents occupation and knowledge ($P<0.05$). No significant differences was found between parental occupation and attitude, and practice toward malaria.

Discussion

In this study, 67% respondents were older than 35 years old. Overall, children who suffered from malaria (82%) were those between 5-12 years old. The samples mostly had educational level of primary school with their children mean of school age of >5 years. This results was in contrary with that studied in Kapoposang by Arsin *et al*⁵.

In this study, we found that 63% respondents were low educated people, meanwhile 31.1% respondents had moderate education and the rest 5.8% had high educational level. Educational level is highly influenced by the increment quality of human resources. If the education level is high, they may follow science and technology easier.¹⁰

In this study, we found that although parents knowledge and attitude about malaria incidence was

Table 2. Association between children's malaria status and parental knowledge, attitude, and practice about malaria

Children's Malaria Status	Good		Less		Poor		P
	N	%	N	%	N	%	
Parent's knowledge levels							0.001
Malaria (+)	58	68	21	25	6	7	
Malaria (-)	79	93	6	7	-	-	
Parent's attitude levels							0.011
Malaria (+)	66	78	15	18	4	5	
Malaria (-)	79	93	6	7	-	-	
Parent's practice levels							0.001
Malaria (+)	17	20	40	47	28	33	
Malaria (-)	36	42	44	52	5	6	

Table 3. Association between parents educational levels and knowledge, attitude and practice regarding malaria

Educational levels	Knowledge			Attitude			Practice		
	Good	Less	Poor	Good	Less	Poor	Good	Less	Poor
Primary School	84	20	3	91	12	4	36	52	19
Junior High School	23	4	3	27	3	-	10	10	10
Senior High School	21	2	-	17	6	-	5	15	3
Academy/University	9	1	-	10	-	-	2	7	1
T o t a l	137	27	6	145	21	4	53	84	33
	P>0.05			P>0.05			P>0.05		

Tabel 4. Association between parents age and knowledge, attitude, and practice regarding malaria

Age group (years)	Knowledge			Attitude			Practice		
	Good	Less	Poor	Good	Less	Poor	Good	Less	Poor
20–35	48	6	2	49	6	1	19	25	12
> 35	89	21	4	96	15	3	34	59	21
Total	137	27	6	145	21	4	53	84	33
	P>0.05			P>0.05			P>0.05		

Tabel 5. Association between parents occupation and knowledge, attitude and practice regarding malaria

Occupation	Knowledge			Attitude			Practice		
	Good	Less	Poor	Good	Less	Poor	Good	Less	Poor
Farmer	90	20	4	98	13	3	34	55	25
Merchant	32	1	1	28	5	1	13	18	3
Employee	11	1	-	11	1	-	5	6	1
Jobless	4	5	1	8	2	-	1	5	4
Total	137	27	6	145	21	4	53	84	33
	P<0.05			P>0.05			P>0.05		

good (81% vs 85%, respectively) but good practice was only found in 31%. The reason was unknown. However, other study found that attitude and practice are not always based on knowledge, though, attitude and practice with knowledge as the basis is more worthy than without knowledge.

Result of this study found a significant difference in parents knowledge, attitude and practice among parents whose children were malaria positive and malaria negative. The proportion of knowledge in parents whose children were malaria positive was 68%, 25%, and 7% (good, less and poor), respectively. Meanwhile, for parents whose children were malaria negative was 93%, 7% and 0%. The proportion of attitude in parents whose children were malaria positive was 78%, 18%, and 5% (good, less, poor), respectively. While in parents whose children were malaria negative were 93%, 7%, and 0%. The proportion of practice in parents whose children were malaria positive were 20%, 47%, and 33%, respectively, while in parents whose children had malaria negative were 42%, 52%, and 6%.

Poor knowledge, attitude and practice were also found in a study done by Arsin *et al.*⁵ They did analytical study in Kapoposang Island, a Pangkajene district which was malaria endemic. They found the proportion of good knowledge, attitude and practice were 57%, 55%, and 67%, respectively.⁵

There were several questions not correctly answered by both groups. Only 60% respondents knew about the signs of malaria mosquito, i.e, bulging toward the bottom, and only 62% people knew about the time of biting, which is in the night.

The similar result was found in a study by Suharjo and Manalu¹¹ in Batam, Riau. There were 180 parents and they were asked about the sign of malaria mosquito, 42% gave correct answers. Meanwhile, 37% gave correct answer about the time of biting. Barodji¹² in Dieng (Pekalongan district) found that 60-66% respondents know that malaria is an infectious disease that can be treated and eliminated from the body.

There are arguments regarding the attitude and practice in this study. For example, 37% respondents did not agree that in the region where they live, malaria incidence is high and 59% had never participated in malaria educational programs. The importance of education has been proved by Supratman¹³, who examined 100 respondents in Sayong and Longlongan, Lombok, West Nusa Tenggara. There were increasing quality of knowledge, attitude and practice in Sayong. The examination was done by talking and discussing with a guide book. It is also similar with Sapardiyah's study in Kokop, Kulon Progo district, Yogyakarta.¹⁴ After having given the education regarding malaria, the people's knowledge, attitude and practice increased.

We concluded that there are significant differences on knowledge, attitude, and practice between parents whose children were malaria positive and malaria negative. Overall, parents knowledge and attitude about malaria incidence were good despite their poor practice. These results indicate the need for educational programs for an induction of community in participating malaria control.

References

1. Rampengan TH. Malaria. In: Soedomo S, Garna H, Hadinegoro S, editors. Buku ajar ilmu kesehatan anak infeksi & penyakit tropis. Jakarta: Balai penerbit FKUI; 2002. p. 442-71.
2. Lubis CP. Sero – epidemiologi malaria. *Majalah Kedokteran* 1990;3:135-46.
3. Azlin E. Perbandingan efektivitas Klorokuin dan Fansidar pada malaria Falsiparum di Kabupaten Mandailing Natal [Thesis]. Medan: Bagian Ilmu Kesehatan Anak FK USU; 2001.
4. Badran IG. Knowledge, attitude and practice the three pillar of excellence and wisdom: a peace in the medical profession. Available from: url: <http://www.whosci.eg/publications/emhj/0101/01.htm>
5. Arsin AA, Noor NN, Syafruddin D, Yusuf I. Analisis perilaku masyarakat terhadap kejadian malaria di Pulau Kapoposang, Kabupaten Pangkajene Kepulauan Tahun 2003. *Medika* 2003;12:762-8.
6. Gunawan S. Epidemiologi malaria. In: Harijanto PN, editor. Malaria: epidemiologi, patogenesis, manifestasi klinis & penanganan. Jakarta: EGC; 1999. p. 1-16.
7. Krause PJ. Malaria (Plasmodium). In: Behrman RE, Kliegman RM, Arvin AM, editors. Nelson textbook of pediatric. 16th ed. Philadelphia: WB Saunders; 2000. p. 1049-52.
8. Madiyono B, Moeslichan S, Sastroasmoro S, Budiman I, Purwanto SH. Perkiraan besar sampel. In: Sastroasmoro S, Ismael S, editors. Dasar-dasar metodologi penelitian klinis. 2nd ed. Jakarta: Sagung Seto; 2002. p. 259-86.
9. Sugiono DR. Skala Pengukuran dan Instrumen Penelitian. *Metoda penelitian administrasi*. Bandung: CV Alfa Beta; 2002. p. 77-8.
10. Badan Pusat Statistik, Indikator Sosial Wanita Indonesia. Jakarta: Badan Pusat Statistik; 1999.
11. Suharjo, Manalu H. Pengetahuan, sikap dan perilaku masyarakat Kodya Batam berkaitan dengan penularan malaria. *Cermin Dunia Kedokteran* 2001;131:57-61.
12. Barodji. Pengembangan model pemberantasan malaria berdasarkan lokal spesifik di daerah endemis sekitar Dataran Tinggi Dieng (Kabupaten Pekalongan) Jawa Tengah. Jakarta: Puslit Ekologi Kesehatan, Badan Litbang Kesehatan; 2001.
13. Supratman S. Pengembangan model pemberantasan malaria di daerah Lombok Nusa Tenggara Barat. Jakarta: Puslit Ekologi Kesehatan, Badan Litbang Kesehatan; 2000.
14. Sapardiyah SS. Penyuluhan yang tepat guna bagi masyarakat di daerah endemi malaria Kecamatan Kokop Kabupaten Kulon Progo DI Yogyakarta. Jakarta: Puslit Ekologi Kesehatan, Badan Litbang Kesehatan; 2001.