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## Socioeconomic characteristics of malaria patients in Chanthaburi province

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**Hanvanich M, Tangsakha K, Moollaor P, Phanuphak P, Sitprija V, Intaraprasert R, Phanthumkosol D, Lohsoonthorn P. Socioeconomic characteristics of malaria patients in Chanthaburi province. Chula Med J 1985 Apr; 29 (4) : 485-493**

*The study of socioeconomic characteristics of malaria patients was carried out on 160 patients suffering from acute falciparum malaria and admitted to Prapokloa General Hospital, Chanthaburi province, 320 kilometres east of Bangkok, between January and June 1982. The data were collected by structured interviews which found that 56.9 percent of patients went to the local drug seller for self treatment when they became ill. This may have been due to their poor income, 61.6 percent of which were under 50 bahts per day. Seventy three percent of malaria patients were of a migrant population. Three major occupations were farming (43.4%), labouring (31.0%) and commerce (21.7%). Fifty eight percent of these patients took more than five convalescence days after their hospital discharge.*

**มัทนา หาญวนิชย์, เกียรติ ตั้งสง่า, ประจักษ์ มูลลออ, ประพันธ์ ภานุภาค, วิศิษฐ์ สิตปริจา, รวีวรรณ อินทรประเสริฐ, คำรงค์ พันธุมโกศล, ไพบูลย์ โล่ห์สุนทร. ลักษณะทางเศรษฐกิจและสังคมของผู้ป่วยมาลาเรียจังหวัดจันทบุรี. จุฬาลงกรณ์เวชสาร 2528 เมษายน; 29 (4) : 485 - 493**

*การศึกษาพฤติกรรมทางเศรษฐกิจและสังคมของผู้ป่วยมาลาเรียจากเข็พลาสมโมเดียม ฟาลซิพารัม ที่รับไว้รักษาที่โรงพยาบาลพระปกเกล้าฯ จันทบุรี จำนวน 160 ราย ระหว่างเดือนมกราคม ถึงเดือนมิถุนายน 2525 ทำการรวบรวมข้อมูลโดยการสัมภาษณ์ตามแบบสอบถามที่สร้างขึ้น ผลการวิเคราะห์ข้อมูลพบว่า เมื่อเริ่มเจ็บป่วย ผู้ป่วยมาลาเรียซื้อยากินเองจากร้านขายยาในชุมชนร้อยละ 56.9 สาเหตุหนึ่งอาจเนื่องมาจากฐานะยากจน โดยมิรายได้ต่ำกว่า 50 บาท ต่อวันถึงร้อยละ 61.6 ผู้ป่วยมาลาเรียร้อยละ 73 เป็นประชากรย้ายถิ่นเข้ามาประกอบอาชีพในจังหวัดจันทบุรี อาชีพที่สำคัญของผู้ป่วยมาลาเรีย ได้แก่ เกษตรกรร้อยละ 43.4 คนงานร้อยละ 31.0 และพ่อค้าร้อยละ 21.7 ภายหลังจากออกจากโรงพยาบาลผู้ป่วยมาลาเรียร้อยละ 58 ต้องไปพักฟื้นต่อมากกว่า 5 วัน*

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Extensive antimalaria activities in Thailand date back to the early 1950s, when a gradually expanding countrywide control programme was started. As in other countries, the initial results were spectacular, and WHO encouraged the application of eradication programs which aimed at interrupting the transmission.<sup>(1)</sup> The malaria situation has fluctuated since the inception of the national antimalaria programme. The annual parasite incidence (API) throughout the country has been greatly reduced since 1947 when it was 286 per 1,000 population. From 1966-1972 it appeared to have stabilized between 2.2 and 3.5 per thousand. Since then however, it has risen annually from 2.9 in 1973 to 10.6 in 1981, levelling off in 1982 when the annual blood examination rate (ABER) was 13.2 % of 47 million population. The malaria mortality fell dramatically from 205.5 per 100,000 in 1949 to 35.2 by 1959 and 7.8 in 1982.<sup>(2,3)</sup> The integration of antimalaria activities into the general health services in Thailand began in 1972. The major problems of

malaria control program<sup>(4)</sup> are insufficient resources, inadequate surveillance activities, changing behavior from indoor to outdoor transmission of the main vectors, occupational migration of the population with increasing cultivation in the foothill and forest fringe areas, resistance of *P falciparum* and *P vivax* to chloroquine and to sulfadoxine and pyrimethamine given in combination. The types of houses and huts in which people live also reduce the effectiveness of residual insecticides. In addition, people in hot and humid climates tend to spend the evening hours outdoor, when vectors bite the most.<sup>(5)</sup>

The assessment of the social and economic consequences of the diseases can also help establish the relative importance of the disease. The development of the most appropriate control strategy should be based on the integration of social, economic and epidemiological information.<sup>(6)</sup> The present study attempts to investigate some socioeconomic characteristics of malaria patients.

## Materials and methods

The present study utilized data from the clinical and immunological study of acute falciparum malaria patients conducted at Prapokloa General Hospital, Chanthaburi province, an area located approximately 250 kilometres east of Bangkok. The area is under intense cultivation, being heavily devoted to fruit crops.

All acute malaria patients with blood smear positive for Plasmodium falciparum were included in the study. The total number of patients was 160. The socioeconomic data were collected by structured interviews and follow ups of the patients.

## Results

On the behavior pattern of the malaria patients when they became ill, most stated that they went to the local drug seller for self-treatment (about 56.9%) (Table 1). Generally, they got a set of a combination of drugs, 3 to 5 tablets of antipyretics, antibiotics and antimalarial drugs. They went to the subdis-

trict health center (9.7%) and the private clinic (9.7%) in smaller percentages as compared to that of the local drug seller. This might be due to the poor income of the malaria patients, of whom 61.6% had income under 50 bahts per day and 14.7% between 51 to 100 bahts (Table 2). After suffering from malaria, 36.4% of patients needed a convalescence period of 1 - 5 days and 6-10 days in 40.0% (Table 3).

The age distribution of malaria patients is shown in figure 1. The highest percentage of malaria patients was found in the age group 21 - 30 years. This reflected the active working-age population. For place of residence, it was found that 73.1 percent of malaria patients were of a migrant population (Figure 2). These migrant workers generally live in temporary dwellings where they were easily exposed to malaria vector, and they had less knowledge of malaria etiology and prevention. With regard to occupation of malaria patients, 43.4 percent were agricultural, 31.0 percent

were labourer and 21.7 percent types of occupation were found were merchants. These three more frequently (Figure 3).

**Table 1** Behavioral pattern of the malaria patients when they become ill.

Pattern of the malaria patients seeking for assistance when they become ill	Number	Percent (n = 160)
1. Resting only	6	2.7
2. Local drug seller	128	56.9
3. Village practitioner	8	3.6
4. Subdistrict health center	22	9.7
5. Malaria treatment center	14	6.2
6. Private clinic	22	9.7
7. District hospital	6	2.7
8. Provincial hospital	6	2.7
9. Other	13	5.8
Total	225	100.0

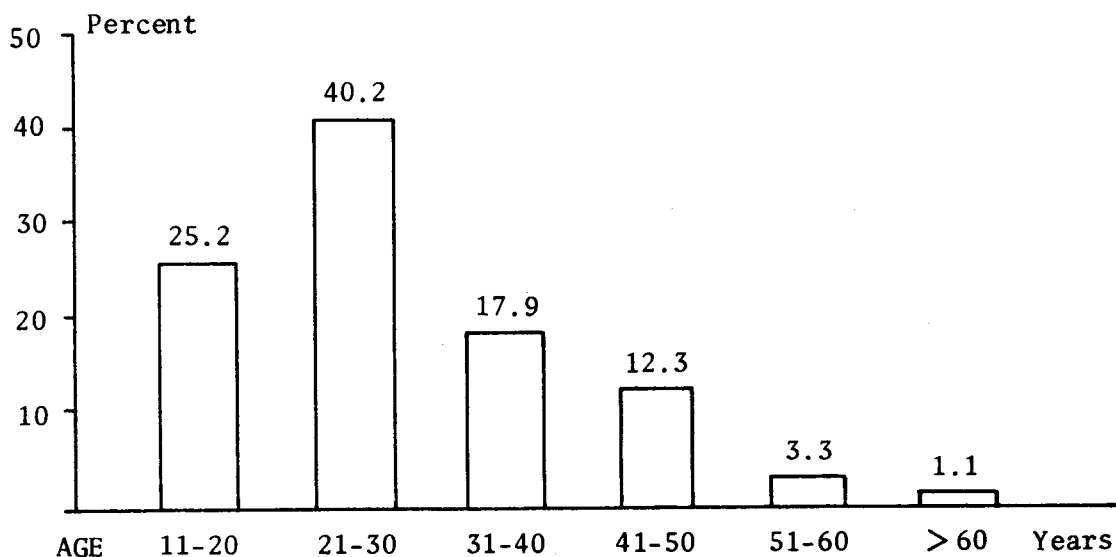
**Table 2** Distribution of income per day (bahts) of malaria patients

Income per day (bahts)*	Number	Percent
1. 0 - 50	96	61.6
2. 51 - 100	23	14.7
3. 101 - 200	23	14.7
4. 201 - 300	5	3.2
5. More than 300	9	5.8
Total	156	100.0

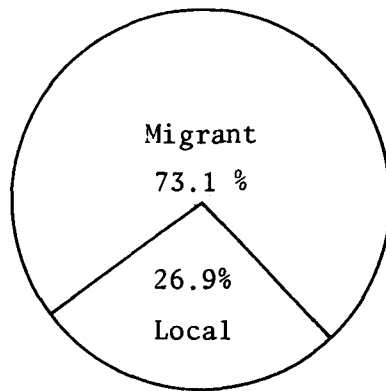
\* 27 Bahts = 1 U.S. dollar

**Table 3** Rehabilitation period of the malaria patients after hospital discharge

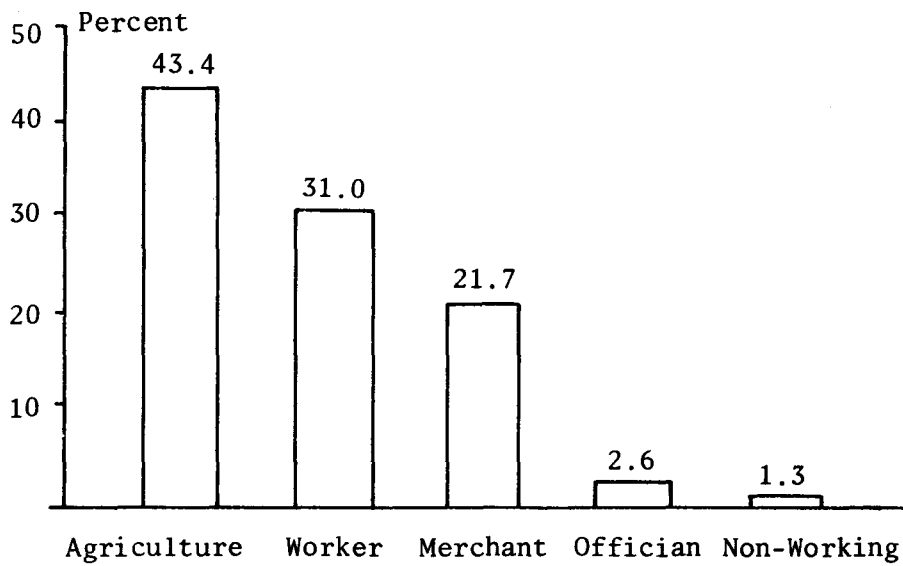
Rehabilitation period	Number	Percent
1. No (start working at once)	3	5.5
2. 1 - 5 days	20	36.4
3. 6 - 10 days	22	40.0
4. 11 - 15 days	9	16.3
5. More than 15 days	1	1.8
Total	55	100.0



**Figure 1** Age distribution of malaria patients



**Figure 2** Place of residence of malaria patients



**Figure 3** Occupation of malaria patients



## Discussion

The health service coverage in rural area is inadequate. A larger proportion of malaria patients are going to local drug sellers for self treatment. The reliance on self medication and traditional practitioners is especially predominant in rural areas where other health services are either not available or acceptable to the people. The inadequate treatment causes the development of resistance in malaria parasites, particularly in *P. falciparum*, to certain antimalaria drugs. In Thailand, *P. falciparum* began to show a poor response to chloroquine in the late 1950's and at present more than 90 % of infections demonstrate resistance mainly at the R II and R III levels. More recently, resistance to sulfadoxine-pyrimethamine has become increasingly widespread all over the country, most often at the R I level but occasionally at R II and R III levels of resistance.<sup>(2)</sup> Mefloquine hydrochloride, a new single dose antimalaria of the quinoline methanol

group of drugs has proved itself effective in the treatment and chemoprophylaxis of both *falciparum* and *vivax* malaria. (7,8,9,10,11)

The present study showed a higher percentage of malaria patients among migrant populations, it is difficult to give an explanation of why migrant populations appear to have higher relative frequency than local populations.<sup>(12)</sup> Kanjanapan (1983) also showed that migrant laborers have a higher risk of infection than natives. It is plausible that there are substantial differences in health behavior between these two populations. This may relate to their knowledge of the etiology and the practice of malaria prevention. The surveillance of labor mobility in endemic areas by village health volunteers, malaria collaborating volunteers or other primary health care workers, the chemoprophylaxis and the health education of migrant laborers will reduce the chances of transmission. The assessment of people's perception, knowledge and attitude can assist in determining

the most acceptable control strategy.

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