

CHAPTER 6

DISCUSSION

This chapter will present the discussion on 3 issues:

1. The level and patterns of utilization of formal malaria diagnosis and treatment services.
2. The factors influencing the utilization of those malaria services.
3. Ability and willingness to pay for malaria diagnosis and treatment services.

6.1 Utilization of Malaria Diagnosis and Treatment Services

According to the results of this study, the total utilization of formal malaria diagnosis and treatment services (MC, VMV and HC) is 80.3% of malaria patients. Among them utilization of MC is 55.4% which is higher than the finding of previous study (Fungladda and Sornmani, 1986). But it has been shown that 63% of inhabitants with malaria attended a clinic in Maesot area (Ettling and others 1991) and only 10% of those attended the clinic in a village with no malaria clinic in the same area but in different study (Ettling and others 1989). Their study was conducted in Saiyok district, Kanchanaburi Province and their finding showed that only 24% of patients used malaria clinic. But utilization of drug store and self-medication were 34% and 24.5% respectively. In our study we combined these two facilities and the result was 17.9%. The reasons may be there are less alternative health facilities, their high faithfulness on the quality of care especially at malaria clinic and convenience of travel to go to malaria clinic.

According to age distribution 50% of respondents are between the ages of 15 and 35 years who are ages of production, in other words they are working age group. This point also favors the high utilization of those malaria services because malaria can cause the patients absent from their works. In this study the mean days of absence from work is 7 days. If they are away from work due to malaria their earning capacity will reduce. Thus they want to be cured malaria at malaria clinic at where they thought that quality of care is better.

In this study most of the respondents are low in education level. About 59% of them are illiterate and about half of the males and 2/3 of females are comprised in this group. Although education and utilization of health care services are positively correlated (Anderson 1973; Piperno and Di Orio 1990) it seemed to be opposite affect on utilization in this study. It may be due to other factors which have influential power than that of education.

Regarding with income, it could be considered as a part of ability to pay in this study it will be discussed separately. We asked total family income per annum for every respondent. Average total

family income is 14437/year which is relatively low in comparing with other areas of Thailand. In comparing with Measot area, the average household income was 16000 Bahts due to 1985 data of a previous study (Ettling and others 1991) Standard deviation is too large (14168) and it means that there are very wide variation. Although income influences the utilization of health services in some extent, it alone does not determine the utilization. The effects on utilization are interdependent with other factors such as distance, severity of illness, cost of using health services patient's preference and convenience of travel etc (Kaewsonthi and Harding 1986; Wanmali 1985; Abel-Smith and Leiserson 1978). If the cost of using health services is high in relation to their incomes, the poor will use them only when they regard it as desperately important to do so. They will hope that illness will cure themselves, as many do, and postpone seeking help for payment until they have been seriously ill for some time. At that stage, they will often be willing to go into debt if this is necessary to obtain services. As illness restricts earning capacity, those who have no savings and can not borrow will be least able to purchase services when they are seriously ill.

According to multiple regression analysis, the dependent variable is frequency of utilization of formal malaria diagnosis and treatment services and many independent variables. That regression analysis was done under the following assumptions (Daniel 1983).

1.The independent variables are nonrandom (fixed) variables. This condition indicates that any inferences which are drawn from sample data apply only to the set of independent values observed and not to some larger collection of independent variables.

2.For each set of values of independent variables there is a subpopulation of values of dependent variables. These subpopulations of values of dependent variables are normally distributed.

3.The variances of the subpopulations of dependent variables are all equal.

4.The values of dependent variables are independent. That is, the values of dependent variables selected for one set of values of independent variables do not depend on the values of dependent variables selected at another set of values of independent variables.

Constant value was 0.283 and it was not significant ($P = 0.431$). The others independent variables were significant and The sex has the largest coefficient value (-0.457). It means that males used those services more than females. The explanation is that males are more concerned with production and most of them are main income earners of a family. If they suffered from malaria, they do not want to be away from their works and most of them have tendency to utilize malaria services. Another reason may be that they have relatively higher education level.

The variable which has second largest coefficient (Beta) value is perceived quality of service. Perceived quality of service is

positively correlated with utilization. It is consistent with the findings of other studies (Kaewsonthi and Harding 1986; Litvack and Bodart 1993).

The frequency of malaria attacks is third in position and it is positively correlated. It is obvious that frequent attacks of malaria warn the patients to attend the service points (Fig. 5.3). Furthermore, the symptoms of malaria make the patients suffered very unpleasantly and they are not able to withstand with repeated suffering and try to seek the treatment.

The fourth important factor that influences the utilization of those malaria services is patient's cost to receive the malaria treatment at those services. Kloos (1990) study pointed out that type and cost of transportation is one of the important factors in utilization of polyclinic out patients. In our study patient's costs included travelling cost, food and time cost (time for travelling). In contrast, Kaewsonthi and Harding's (1986) findings showed that in relation to convenience of travel, and quality of service and confidence in the service, travelling cost is not a major determinant of patient behavior in seeking attention at a service point. They suggested that if the average total cost to patients is to be reduced both the quality of service (speed and satisfaction) and siting of services should be improved.

According to coefficient values, total household consumption and income are fifth and the last important factors for utilization. The income is negatively associated with the utilization. It may be due to the fact that they thought the formal malaria services as a whole (included M.C, VMV and health center) is an inferior service. When the people become rich, they tend to use superior services in stead.

6.2 Willingness to Pay for Malaria Diagnosis and Treatment Services

Multiple regression analysis for willingness to pay WTP for diagnosis of malaria and independent variables showed that only 3 independent variables have significant relationship. They are real severity of malaria, perceived severity of malaria and provider costs felt by the respondents in descending order. Their coefficient values are shown in Table (5.7). The real severity is positively associated with WTP for diagnosis. It means that their WTP is more in patients with severe malaria than in those with mild malaria. It is clear that when they suffered from severe malaria they become more dependent on malaria clinic and they have more WTP. Association is very strong because of high coefficient value.

But in case of perceived severity that is negatively related with WTP for malaria diagnosis. It is contrary to our expectation. It can be explained that when they thought that they suffered from severe malaria they kept away from their works and their earning capacity became reduced. So their ability to pay became reduced and WTP also reduced. Another reason may be they thought that diagnosis of malaria

is not necessary and they do not need to pay for it.

The last important factor that influences the WTP for malaria diagnosis is provider cost that estimated by respondents and it is positively associated with it. The logic is that if they thought the provider cost is high, it is worth while to pay for this service. It is consistent with our assumptions.

The average WTP for malaria diagnosis is 25 Bahts/episode and it is a reasonable level of WTP in relation with actual provider cost for malaria treatment at the field level which is 44 Bahts according to Kaewsonthi and Harding's (1988) study. 10 respondent answered that they have no WTP for malaria diagnosis. 3 of them gave the same reason ie, they are very poor and they can not afford it.

The average WTP for drug treatment of malaria is 31 Bahts and it is also a quite reasonable amount of WTP. Only one respondent answered no WTP for drug treatment. It indicates that majority of population understand malaria treatment is more important and costly than diagnosis. The reason for no WTP is same as above, he is poor.

According to results of regression analysis, 7 factors are significantly associated with WTP for drug treatment. They are, placed in descending order of coefficient value, perceived severity of malaria, numbers of children in a family, distance between home and service points, patient's cost for treating malaria, their perceived provider costs, total household consumption and income.

The perceived severity of malaria is strongly and inversely associated with WTP for drug treatment of malaria. The direction of malaria is same as the relationship with WTP for diagnosis. The reason may be also same as the first reason of previous one. If they thought that they are severe they were away from works and it led to reduced income and low WTP for malaria treatment. It may be related with the days absence from work.

Numbers of children is positively associated with WTP. Their association is quite opposite from our expectation. The reason behind it may be that the children are vulnerable to malaria infection and mortality is high in relation with adults. And they have to frequently visit to malaria services because of frequent attack of malaria due to a number of children. This relationship can be seen in Table A.4 Appendix 3, and they understand the value of malaria services. Due to the fact that their WTP for malaria drug treatment is high.

Distance is placed in third position and positively associated with WTP for drug treatment of malaria. It indicates that if the home is far from malaria clinic the respondents are more willing to pay for drug treatment of malaria. It is quite contrary to our expectation. It could be explained that although the distance is great, the travelling is quite convenient due to good condition of the roads and easy availability of motorcycle for transportation. Apart from hamlet "G", the other hamlets can go to malaria clinic with convenience and they

are not so far. The furthest one is 8 Kilometers away from clinic. They can access to malaria clinic within average half an hour and travelling and time costs are not so much.

Furthermore, they felt that the malaria clinic has good quality of care and they can be cured more safely than other alternatives. The another reason is a few numbers of alternative health facilities to treat malaria in that area. They perceived that the malaria clinic is the best service point for malaria treatment and they are full of faithfulness and confidence on this clinic. The above mentioned facts are the reasons why they are more willing to pay for the formal malaria diagnosis and treatment services.

Cost incurred by patients to receive malaria treatment is negatively related with WTP. It means that if the cost incurred by patients during receiving malaria treatment at a service point is too high their WTP will decrease. Costs incurred by patients include travel, time and food costs. Among them, travelling cost and time cost are major portions. Thus they have to spend their pocket money for treating malaria. Furthermore, malaria restricts earning capacity and in combination with expenditure for malaria treatment, their ability to pay (ATP) substantially reduced and it will lead to decreased WTP for it.

The felt provider cost is positively associated with WTP for malaria treatment. If they thought that the provider cost for malaria treatment is high, they are more willing to pay for it. It is no doubt that people are willing to buy an object with a higher price if they thought that it has great value. It is important to let them know how much the provider cost for malaria treatment and even malaria control programme by any way.

Total household consumption per annum is negatively related with WTP. If the household consumption is great, their WTP for treating malaria will reduce. It is consistent with our prediction. According to economic rationality, they have already consumed their money for basic needs such as foods, clothing and sheltering. At present, they need not pay for malaria treatment (free of charge) and asking their WTP at the moment will definitely be low.

Total household income per annum is positively associated with WTP for formal malaria services. It is also consistent with our forecasting. If someone has high income, he/she has high ability to pay for it and will be more willing to pay for this service. This is consistent with finding of a study conducted by Olsen and Donaldson, 1993.

Regarding with ATP, there was no supportive results for significant relationship between amount of WTP and ATP scores. It indicates that WTP does not depend only on ATP and other factors such as travel distance, convenience of travel, perceived quality of services, severity of malaria and their emotion or behavior. This is an important policy implications for decision makers to make a plan which

motivates the community's emotion or behavior for high WTP. By the way it may be feasible to introduce the cost sharing scheme.

6.3 Economic Implications

In this study utilization of formal malaria diagnosis and treatment services are fairly high (80.3%) and the major reasons for it will be perceived high quality of service, positive relationship between frequency of malaria attack and utilization and gender difference (male productive age are using service more). We can assume that if the perceived quality of care is high, actual quality of care might be high. In this case, we defined the quality of care by four points. They are availability of drugs, regular availability of staffs, good dealing and qualified skill of staffs. The malaria control programme should aware of these factors and maintain the high status of quality. And such a high quality of care should be spread widely all over the country.

Training and refresher courses for every level of personnel to maintain quality of care in the long-run should be required. Anti-malarial drugs should also be adequately distributed to all service units to meet patients' expectation.

Relation with frequency of malaria attack and frequency of visit to malaria clinic is partly concerned with awareness of danger of disease and it can be improved by frequent distributions of health education. Health education is one component of preventive health care and it is under the primary health care programme. The PHC programme should be promoted in order to improve the preventive health care.

In this study the high frequency of visits to those malaria services occurred within 2 or 3 attacks of malaria. It indicates that most of the respondents have the awareness of danger of malaria. So that they used the formal services in the early attack of malaria and it can also reduce the community costs by decreasing the days off work due to malaria. Early detection of the malaria cases and prompt and proper treatment can decrease the malaria transmission among the community and lower the possibility of drug resistant problems.

Regarding with the utilization patterns, 55.4% of respondents used the malaria clinic, 17.9% of them used drug stores and self-medication, and 16.9% used village malaria volunteer (VMV). The cost incurred by patients to use drug stores was considerably high (Fig. 5.2) and it was the lowest to use VMV. Kaewsonthi and Harding's (1986) finding showed that self-medication can cause considerable explicit expenditure and delay in attending service point that increases the implicit cost to patients if they are off work during this period. Self-medication is not only costly but harmful because it can lead to multidrug-resistant problem with falciparum malaria.

The solution for this problem may be new establishment of out reached clinics in malaria endemic areas. By the way the accessibility could be improved and the costs incurred by patients could be reduced. Increased

utilization of formal services can lead to improved efficiency of malaria control programme by means of decreasing malaria morbidity and mortality, and reduced average provider cost.

Utilization of VMV is fine and it should be maintained by improving their skill. Reduced social barrier between the patient and the health personnel may be one of the main reasons for high utilization of VMV. It may be the result of active community participation and strengthening of PHC programme.

Although income has some effects on utilization of malaria services, its effect is opposite to our expectation. Some other factors overwhelm the influential effects of income. The reason may be as mentioned above, the patients thought that the combination of three formal services (malaria clinic, VMV and health center) as a unit is an inferior service and when they have higher income, they may tend to use alternative services which are superior services thought by them.

Regarding with WTP, we can get some information before introduction of user fees system. Nowadays, Thailand is facing with new public health problem with AIDS, like other countries, and malaria could be ranked to low priority disease in the future. At that time, expenditure of malaria will be reduced. For sustainability of malaria control programme and to prevent resurgence of malaria, user fees system may be possible to introduce. And some finding about WTP from this study may become useful for determining of user fees.

From our results, average WTP for diagnosis was 25 Bahts and that for drug treatment was 31 Bahts. When these two are summed up, it will be 56 Bahts which is more than actual provider cost for malaria treatment at the field level (ie. 44 Bahts) according to previous study (Kaewsonthi and Harding, 1988).

According to our questionnaire about their utilization of formal malaria services if they have to pay for services, 96% of respondents will continue to use those services. The reasons for continuing utilization of those services are convenience of travel (30%), it is the nearest service point (30%), good quality of service (18.2%), and the cost of treatment may be still cheaper than alternative services (2.7%).

Regarding with the quality of service, rapid diagnosis and proper and prompt treatment is one of the various strategies to improve the quality of malaria service. For this reason the decision makers should consider to substitute the newer method for rapid diagnosis like "Parasight" test for traditional microscopic method. By the way both actual and perceived quality of malaria services become improved. It might be an incentive for the community to raise their WTP and that can lead to feasibility for introduction of cost sharing scheme in those malaria services.

From equity point of view, fee schedules must be sensitive to local economic circumstances, especially people's ability to pay. Fees

may have to be waived or reduced for patients from vulnerable households or socio-economic groups so that their utilization of health services does not decline.

The following points should be considered and exercised in the interpretation of WTP results:

1. A market for malaria services may not previously have existed because they have been provided free.

2. The cost or price paid by patients in the past may not reflect the maximum amount they are willing to pay, which may be greater.

3. WTP for a service is related to particular situations and non-price factors, so that patients may be willing to pay a certain price to one provider but may not be willing to pay the same price to a different provider.