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*Medical Full Length Article*

# Self-Medication and Factors Influencing its Practice: A Case Study on Anti-Malarial Drugs among Residents of Langas Estate Eldoret Municipality, Kenya.

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**Self-medication is widespread in many parts of the world. Studies show anti-malarial drugs are inappropriately used through self-medication raising the risk for drug resistance. The study was conducted in Langas Estate, Uasin Gishu County, Kenya in May 2011. The purpose of the study was to determine factors that influenced self-medication with anti-malarial drugs. Objectives: 1) To determine the relationship between the practice of self-medication with anti-malarial drugs and general knowledge on malaria, environmental factors and socio-economic factors 2) To determine the relationship between practice of self-medication with anti-malarial drugs, age of respondent, monthly income and level of education 3) To compare practice of self-medication with anti-malarial drugs according the type of employment and gender of the respondent. A descriptive correlation design was used. Stratified and systematic sampling methods were used to select the study area and respondents respectively. The sample consisted 391 respondents. Structured questionnaires were used. The study revealed there was a significant relationship between socio-economic factors and practice of self-medication with anti-malarial drugs (*p*- =0.016), general knowledge of malarial symptoms (*p*- =<0.0015) and monthly income (*p* =0.001). However there was no relationship between the practice of self-medication and environmental factors (*p* =0.088). Conclusion: factors which influenced the practice of self-medication with anti-malarial drugs were socio-economic, general knowledge of malarial symptoms, level of education and the monthly income. It recommended that there was need for the Kenya Ministry of Health to provide comprehensive information on rational drug use to consumers. Furthermore, over the counter sale of anti-malarial drugs should be reviewed.**

**Keywords:** Self- treatment, Home remedies, Attitudes, Practices, Self-mediation, Anti-malarial drugs

## INTRODUCTION AND LITERATURE REVIEW

Most people in malarial regions resort to self – medication with anti-malarial drugs whenever they feel ill [1]. The symptoms of illness include fever, diarrhoea, vomiting and joint pains. The self-medication practice and widespread use of poor quality and inappropriate medicines have most likely contributed to the increased development of drug resistant malaria [2] and [3].

A study on the determinants of self- medication with antibiotics in Europe revealed that perceived availability of antibiotics without prescription was related to increased probability of self-medication [4]. The study recommended further research to explore the determinants of self-medication at individual level. Individual factors that promoted self-medication included patient/health provider relationship and patient satisfaction in relation to self-medication with anti-malarial drugs. Another study among secondary school children in Hong Kong on self –medication behaviours reported that the prevalence increased with age [5]. According to [6] (2008), uncontrolled anti-malarial drug use is of importance and should be explored besides socio-cultural factors.

A considerable proportion of people at high risk of malaria, particularly in rural areas, live outside easy geographical reach of health facilities, rendering access to diagnostic and curative services limited. As was identified by [7] patient education, socio-economic status, gender and age as the major factors associated with self-medication of drugs. On the other hand, [3] states that people practice self-medication because of belief, experience, and lack of confidence in health services and the cost of treatment. According to [8] adults are more likely to self-medicate with over the counter drugs than the children. Storage of drugs at home promotes self-medication [9]. This may result in inadequate dosage administration because of the possibility of drug sharing thus predisposing the sick to incidences of drug resistance. Other factors that lead to drug resistance includes lack of proper instruction on drug usage, irrational prescribing by both unqualified and qualified persons and tendency of sharing drugs with other members of family or neighbours resulting in incomplete dosage.

Home treatment of malaria is the norm in many developing countries, with chloroquine the most widely used/abused drug for self-care. Treatment in formal health services occurs mainly in very severe cases or when services are accessible. Inappropriate and inadequate treatment explains, in some cases, why persons forego formal treatment and prefer self-medication [10]. Treatment of malaria and prevention of complications can be achieved if the condition is promptly diagnosed, treated and/or referred. However, delay in seeking therapy, misuse of ant-malarial drugs, and resistance of malaria parasites to existing drugs frustrate measures to effectively manage the disease in Africa [11].

The practice is further explained by [12], who stated that: When the symptoms of a disease commence, the affected person becomes sick, but most people give no attention to the symptoms hoping they will disappear. If symptoms persist some people try to treat themselves or consult traditional healers. Seeking help from the nearest clinic or hospital may be delayed because the sick person lives too far, feels too ill to travel or (s)he thinks the health services will not do them any good or may dislike the medical worker for some reasons.' According to [10], the inability of public health services to deliver timely and effective treatment for all people at risk of malaria resulted in the need for home management of malaria.

Self-medication especially with anti-malarial drugs has been reported in several parts of Africa. A study done in Kenya rural areas on self-medication of anti-malarial drugs found out that self-medication was extremely common. Sixty percent of 138 episodes of febrile illness were treated at home using medicines purchased at local shops [13]. Another study in Kenya on treatment- seeking behaviour for malaria in epidemic highland areas revealed that, 66% of adults and 66.7% of children sought treatment from medical facilities [14]. However, a significant proportion of these highland population chose local shops for initial malaria treatment but, they received inappropriate medication from the shops, resulting delay of effective treatment.

## STATEMENT OF THE PROBLEM

Self-medication for malaria treatment presents a serious public health challenge with the attendant high risk for malaria resistance, morbidity and mortality. Furthermore, low socio-economic status among the people at high for malaria significantly influence on the practice of self-medication with anti-malarial drugs [6] & [15]. In Langas Estate of Eldoret town, there are no government health care facilities in-spite of high population.

Consequently, the residents have limited access to proper and subsidized malarial treatment in public hospitals. Records from two non-governmental health facilities in Langas revealed that 80 % of the patients were treated for recurrent malaria prior to the study period. It has been argued that the poorest populations are the least likely to seek prompt and effective treatment; however, the factors that prevent them from accessing interventions are not well understood [16]. This assertion may be true of Langas Estate which a relatively low income area. Therefore, there is need to establish the factors that influence self-medication practices with anti-malarial drugs.

## OBJECTIVES OF THE STUDY

The study was guided by the following objectives. 1) Determine the relationship between the practice of self-medication with anti-malarial drugs and general knowledge of malaria, environmental factors,

and socio-economic factors. 2) Determine the relationship between the practice of self-medication with anti-malarial drugs and age of respondent, monthly income, and level of education. 3) Compare the practice of self-medication with anti-malarial drugs according to type of employment and gender of the respondent.

## JUSTIFICATION OF THE STUDY

In many developing countries up to 60-80% of health problems are due to self- medication [17]. These problems include delay in accessing proper treatment, drug poisoning resulting from overdosing and drug resistance due to under dosing. Factors associated with self-medication such as socio- economic status, general knowledge on malaria and environmental states need to be explored in order to determine their relationship with the practice of self-medication anti-malarial drugs among the residents of Langas Estate. This is because there is no literature to indicate a study having been carried out on self-medication in Langas Estate despite the evidence of the practice from records obtained from local chemist shops.

## METHOD OF THE STUDY

Descriptive design was used to study the factors influencing the practice of self-medication with anti-malarial drugs. The study was done in an urban setting of Langas Estate, Eldoret Town, of Uasin-Gishu County in Kenya. The sample consisted of 391 respondents selected by stratified and systematic sampling methods.

Self-administered questionnaire was used to collect data. The reliability of the questionnaire was calculated by Cronbach Alpha coefficient. The reliability coefficients of 0.707, 0.646, 0.779 and 0.433 were obtained for prevalence of self-medication, common malarial symptoms, environmental factors and socio-economic factors respectively.

## ETHICAL CONSIDERATIONS

Permission to conduct the research was obtained from the research and ethics committee, University of Eastern Africa, Baraton, the Ministry of Education, and the District Commissioner, Wareng District. During data collection consent was sought from the respondents before administration of the data collection tool.

## RESULTS

Four hundred questionnaires were distributed and three hundred and ninety one (391) were completed and returned. The response rate was 97.8%. The majority of the respondents (58.6 %) were mothers of the households. This is because fathers (41.4 %) were out at the time of the study.

**Table 1:** Characteristics of study population

| **Gender** | **N =391** | **%** |
|---|---|---|
| Males (M) | 161 | 41.4 |
| Females (F) | 230 | 58.6 |
| Level of Education | N =391 | % |
| Informal | 22 | 5.7 |
| Primary | 123 | 31.4 |
| Secondary | 169 | 43.2 |
| Middle level college | 67 | 17.2 |
| University | 10 | 2.5 |
| Types of employment | 391 | % |
| Formal employment | 75 | 19.3 |
| Self-employment | 169 | 43.1 |
| Casual labor | 99 | 25.4 |
| Other (unemployed) | 48 | 12.2 |
| Monthly Income (KShs.) *(95Kshs= 1USD)* | N =391 | % |
| Less than 10,000/= | 239 | 61.2 |
| 10,000– 19,000/= | 103 | 26,3 |
| 20,000-29,000/= | 12 | 3.1 |
| 30,000/= and above | 2 | 0.6 |
| Other (unemployed) | 34 | 8.8 |

According to Table 1, 43.2 % of respondents attained secondary school education while 31.4 % had primary level of education. Respondents who had middle level college education were 17.2 % and those with university education were 2.6 %. The respondents with informal learning were 5.7%.The findings from this study indicated that only (19.8 %) of the respondents had tertiary level education which may explain why a very high percentage of residents had low levels of income. A significant proportion of the respondents were self-employment (43.1 %) followed by casual labor (25.4 %) and formal employment (19.3 %) respectively. The respondents who were unemployed (12.2 %) were mostly housewives who depended on their husbands for income.

Regarding the monthly income most of the respondents earned less than Kshs.10, 000 per month (61.2 %). Those earning Kshs.10, 000-19,000 were 26.3 %, Kshs.20, 000-29,000 were 3.1 % and above Kshs.30, 000 were .6 %. The respondents without a monthly income were 8.9 %.

**FACTORS INFLUENCING THE PRACTICE OF SELF-MEDICATION WITH ANTI- MALARIAL DRUGS**

**Table 2:** The relationship between the practice of self-medication with anti-malarial drugs and common knowledge on malaria, environmental factors and socio-economic factors

| Type of Factor | Common knowledge of malaria | Environmental factors | Socio-economic factors |
|---|---|---|---|
| Practice of self-medication | .122*<br>.016 | -.086<br>.088 | -.242**<br>.000 |
| Common knowledge of malaria | | -.326**<br>.000 | -.119*<br>.019 |
| Environmental factor | -.326**<br>.000 | | .407**<br>.000 |
| Socio-economic factor | -.119*<br>.019 | .407**<br>.000 | |

*Correlation is significant at 0.05 level (2 tailed *t*- test)

**Correlation is significant at 0.01 levels (2 tailed *t*- test), *r*= correlation coefficient

**Practice of self-medication and respondent's age, monthly income and level of education**

There was a significant relationship between the practice of self-medication with anti-malarial drugs and monthly income ($p$ =<0.001) as well as the level of education ($p$ <0.001). However, no significant relationship between the age of the respondent and the practice of self-medication was found. There was a negative correlation between the practice of self-medication and the monthly income ($r$= -0.197). The explained variance was 3.8% and unexplained variance of 96.2%. The strength of the correlation was weak but the higher the monthly income the lower the tendency for the practice of self-medication.

The results revealed there existed a weak negative correlation between the practice of self-medication and the respondent's level of education ($r$= -0.186).This was because they explained variance of 3.5% was low and the unexplained variance of 96.5%. Thus the higher the level of education the less the practice of self-medication.

**Practice of self – medication according to employment**

The findings revealed significant differences in means regarding the practice of self-medication among respondents classified according to types of employment. This is because the F- ratio of 9.406 is less than the tabulated value of 2.60 and the $p$-value of 0.000 is less at the significance level 0.05. Thus the null hypothesis was rejected based on the study findings. The practice of self-medication is more among respondents in casual labor with a mean score of 2.4 than those in self-employment, formal employment and other forms of employment with mean scores of 2.0, 1.9 and 2.0 respectively.

Employment as a source of income is one of the factors associated with the practice of self-medication [7].

**Self-medication according to employment**

**Table 3**:Self-medication according to types of employment

| Type of employment | Mean Difference (I-J) | Std Error | Sig | 95% Confidence Interval (CI) | |
|---|---|---|---|---|---|
| | | | | Lower bound | Upper bound |
| Formal employment | -0.11574 | 0.09886 | 0.243 | -0.3103 | 0.0788 |
| Self-employment | -0.50204* | 0.10896 | 0.000 | -0.7165 | -0.2876 |
| Casual labor | -0.04042 | 0.13201 | 0.760 | -0.3002 | 0.2194 |
| Self-employment | 0.11574 | 0.09886 | 0.243 | -0.0788 | 0.3103 |
| Formal-employment | -0.38629* | 0.09030 | 0.000 | -0.5640 | -0.2086 |
| Casual labor | 0.07532 | 0.11708 | 0.521 | -0.1551 | 0.3057 |
| **Casual labor** | | | | | |
| Formal employment | 0.50204* | 0.10896 | 0.000 | 0.2876 | 0.7165 |
| Self-employment | 0.38629* | 0.09030 | 0.000 | 0.2086 | 0.5640 |
| Other | 0.46161* | 0.12572 | 0.000 | 0.2142 | 0.7091 |
| **Other** | | | | | |
| Formal employment | 0.04042 | 0.13201 | 0.760 | -0.2194 | 0.3002 |
| Self-employment | -0.07532 | 0.11708 | 0.521 | -0.3057 | 0.1551 |
| Casual employment | -0.46161* | 0.12572 | 0.000 | -0.7091 | -0.2142 |

*The mean difference is significant at p<= 0.05 level.*

Table 3 shows the results of statistical analysis in relation to types of employment. The findings indicated significant differences in the practice of self-medication between casual labor and formal employment ($p$ = 0.000, mean difference = -0.502), casual labor and self-employment ($p$ = 0.000, mean difference = -0.386) and casual labor and other forms of income ($p$ = 0.000, mean difference = 0.461). However there existed no significant differences in the practice of self-medication between formal employment, self-employment and other forms of employment

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**Table 4:** Practice of self-medication among males and females

| | F | Sig | T | D*f* | Sig.(2-tailed ) |
|---|---|---|---|---|---|
| Equal variances Assumed | 0.066 | 0.798 | -0.926 | 293 | 0.355 |
| Equal variances Un-assumed | - | - | -0.931 | 263.039 | 0.353 |

As shown in Table 4 the practice of self-medication among the males and females tended to be similar. The findings showed no significant difference between females and males in the practice of self-medication with anti-malarial drugs.

**DISCUSSION**

The findings of the study revealed a significant relationship between the practice of self-medication with anti-malarial drugs and the knowledge of common symptoms of malaria (P = .016).The correlation between the practice of self-medication and knowledge of common symptoms of malaria is weak ($r$=.122, $r^2$=1.5%).The explained variance was 1.5% and unexplained variance is 98.5%.This findings are consistent [13].Their study in Western Kenya on knowledge of malaria revealed that respondents were well informed. However, malaria was perceived as a mild illness and thus self-medication was common in up to 60% of people being treated at home.

The study found no significant relationship between the practice of self-medication with anti-malarial drugs and environmental factors. These finding differs with those of [4] and [6] who cited environmental factors such as distance to the health facility and patient/health provider relationship as factors contributing to the practice of self-medication with anti-malarial drugs.

The respondents with a lower level of education had a lower monthly income due to the

nature of employment and were likely to practice of self-medication. This may be explained by the fact that it was cheaper and easier to access anti-malarial drugs from the local chemist shops than incur higher cost in travelling to seek medical treatment from government healthcare facilities in town. The findings were in agreement with [7] who identified patient education and socio-economic status as factors related to the practice of self-medication with anti-malarial drugs

Age and gender other factor cited by [7]. However, the findings from the study were not consistent with the view. This study found the P = 0.355 and the statistical means of the male and female was 2.0599 and 2.1307 respectively. These findings meant that both males and females practiced self-medication equally and were not consistent with [7] noted gender as one of the factors that influenced the practice of self-medication with anti-malarial drugs and that females are more likely to practice self-medication than males. However, [1] in their study on factors influencing patterns of anti-malarial drug use in Western Kenya pointed out that gender does not influence the practice of self-medication.

## CONCLUSION

The following conclusions were drawn from the findings of this study:

1. There was a significant relationship between the practice of self-medication and knowledge of common symptoms of malaria and socio-economic factors.
2. There was a significant relationship between the level of education and the practice of self-medication with anti-malarial drugs among the residents of Langas Estate. This is because the lower the level of education tended to have a higher practice of self-medication.
3. The practice of self-medication with anti-malarial drugs among the residents of Langas Estate is independent of gender.
4. There was a significant relationship between the socio-economic status and the practice of self-medication with anti-malarial drugs. The lower the socio-economic status the higher the practice of self-medication.
5. There was a significant relationship between the monthly income and the practice of self-medication with anti-malarial drugs the lower the monthly income the higher the practice of self-medication.
6. There were significant differences in the practice of self-medication with anti-malarial drugs classified according to the types of employment.

## RECOMMENDATIONS

This study makes the following recommendations based on the findings:

1. There is need for the Government through the Ministries of Health to strengthen the regulations on the sale and access to anti-malarial drugs over the counter as means of reducing the practice of self-medication.
2. There is need to strengthen health education messages by all stakeholders on dangers of inappropriate use of anti-malarial drugs to avoid drug resistance among the users.
3. There is need to address the importance of improving the levels of education of the residents of Langas Estate as this will contribute to improved socio-economic status. The level of education determines the socio-economic status of an individual and this is translated to good health.
4. There is need for improved access to health care facilities especially in high population density areas in urban centres

## RECOMMENDATIONS FOR FURTHER RESEARCH

Following are recommendations for further research:

1. The patterns of anti-malarial drug use following the introduction of ACTs for treatment of malaria by the Government of Kenya.
2. Seropositivity rates for malaria in different parts of Kenya following introduction of insecticide treated mosquito nets and artemisin combined malaria therapy.

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