

Güney Etiyopya *Silte Zone* Toplumunda Antibiyotikler ve Antimalaryallerle Kendi Kendini Tedavi

[Self-Medication with Antibiotics and Antimalarials in the Community of *Silte Zone, South Ethiopia*]

ÖZET

AMAÇ: Antibiyotikler ve antimalaryallerle kendi kendini tedavi Etiyopyalılarda görülmektedir. Biz, Etiyopya'da antibiyotikler ve antimalaryallerle kendi kendini tedavi sıklığını tahmin etmek ve kendi kendini tedavi ile birlikte olan faktörleri değerlendirmek için bu çalışmayı yaptık.

YÖNTEM: Önceden test edilmiş bir soru formu kullanılarak Güney Etiyopya'daki *Silte Zone*'dan rastgele örnekleme ile seçilmiş 405 hane halkı üzerinde kesitsel bir çalışma yürütüldü. Veriler SPSS for windows version 16.0 kullanılarak analiz edildi. Değişkenlerin ilişkisini gözlemek için ki-kare testi kullanıldı.

BULGULAR: Antibiyotikler ve antimalaryallerle kendi kendini tedavi sıklığı bu çalışmada %14,5'ti. Antibiyotiklerle kendi kendini tedavi edenlerin sıklığı %6,7, antimalaryallerle %2,7 iken her ikisini de kullananların sıklığı %5,2 idi. Aylık gelir seviyesi ve eğitim durumu antibiyotikler ve antimalaryallerle kendi kendini tedavi ortaya çıkışını anlamlı düzeyde etkilemekteydi ($p<0.05$). Bu çalışmada kendi kendini tedavi sıklığı en yüksek olan 3 hastalık baş ağrısı (%38,5), yüksek ateş (%35,9) ve öksürük (%14,1) idi. Kendi kendini tedavide kullanılan antibiyotikler arasında Amoksisilin (%13,5) ve Siprofloksasin (%8,5) en sık kullanılan ilaçlardı. Antimalaryallerden klorokin, %10,1 ile en sık suistimal edildi. Antibiyotik ve antimalaryallerin temel kaynağı %58,97 ile eczaneler ve %17,95 ile marketlerdi. Katılımcıların %20,51'i sağlık tesisinde zaman kaybetmemek için kendini tedavi uyguladı.

SONUÇ: Antibiyotikler ve antimalaryallerle kendi kendini tedavi sıklığı çalışma grubunda düşüktü. Kendi kendini tedavi daha yüksek gelirli ve daha yüksek eğitimli grupta daha yüksek olma eğilimideydi. Kendi kendini tedavi için en önemli neden sağlık tesisinde zaman kaybetmekten kaçınmak olarak bulundu. Eczaneler temel ilaç kaynağı idi.

SUMMARY

AIM: Self-medication with antibiotics and antimalarials occurs among the population in Ethiopian. We studied to estimate the prevalence of self-medication with antibiotics and antimalarials in Ethiopia and evaluate factors associated with self-medication.

METHOD: A cross-sectional study was conducted on 405 households, selected from *Silte Zone* in South Ethiopia, using a random sampling technique by employing a pretested questionnaire. Data were analyzed using SPSS for windows version 16.0. Chi-square test was used to observe the association of variables.

RESULTS: The prevalence of self-medication with antibiotics/antimalarials in this study was (14.5%). Twenty seven (6.7%) self medicated with antibiotics, 2.72% used antimalarial drugs while 21 (5.20%) used both. Level of monthly income and educational status significantly influence pattern of antibiotics and antimalarial self medication ($P<0.05$) The top three diseases that led to self medication in this study were headache (38.5%), fever (35.9%), and cough (14.1%). Among self-medicated antibiotics, Amoxicillin (13.5%) followed by Ciprofloxacin (8.5%) were the most commonly used class of drug. From antimalarial drugs chloroquine (10.1%) were highly abused. The main source of antibiotics /antimalarials was community pharmacies (58.97%) followed by shops (Kiosks) (17.95%). The majority (20.51%) of the respondents practiced self medication to avoid waiting time at health facilities.

CONCLUSION: The Prevalence of self-medication with antibiotic/antimalaria in the study community was low. Self medication tended to be higher in people with a higher education and those on higher monthly incomes. The major reason for self-medication is found to be to avoid waiting time at health facility. Community pharmacies are the major source drugs.

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INTRODUCTION

Self-medication is use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms (1-3). Increasing rates of antimicrobial resistance have left clinicians with limited drug options for the treatment of infectious diseases which is mainly due to irrational use and

overuse of antimicrobial (4,5). In most of developing countries many drugs are dispensed over the counter without medical supervision. In this case, self-medication provides a lower cost-alternative for people who cannot afford the cost of clinical service (6,7). A major shortfall of self-medication is the lack of clinical evaluation of the condition by a trained medical professional, which could result in missed diagnosis and delays in appropriate treatments (1,8).

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Anahtar Kelimeler:

Antibiyotikler, Antimalaryaller, Antimikrobiyal, Kendi Kendine İlaç Tedavisi, Etiyopya.

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Studies revealed that the increase in self-medication was due to a number of factors. These included socioeconomic factors, lifestyle, ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products (9)

It is well documented that the indiscriminate use of antibiotics has led to hospital, waterborne and food-borne infections by antibiotic-resistant bacteria, enteropathy, drug hypersensitivity, biosphere alteration, human and animal growth promotion, and destruction of fragile interspecific competition in microbial ecosystems (3). The consequences are severe; infections caused by resistant microbes fail to respond to treatment, resulting in prolonged illness and a greater risk of death. Treatment failures also lead to longer periods of infectivity, which increase the numbers of infected people moving in the community and thus expose the general population to the risk of contracting a resistant strain of bacteria (2,10). The determinants of self-medication with antibiotics in developing countries include over-the-counter sale of antibiotics, the cost of medical consultation, low satisfaction with medical practitioners, and misconceptions regarding the efficacy of antibiotics (11-14).

Malaria remains a major public health problem in Ethiopia and Africa at large. It has been estimated that out of the over one million deaths caused by malaria world-wide, 90% occur in sub-Saharan Africa (15). It is a public health problem of global concern because of its high economic burden on the nation, high prevalence of mortality in children, pregnant women and non-immune individuals (16). There has been some level of improper use of antimalarial drugs despite the fact that *Plasmodium falciparum* malaria still remains the primary cause of morbidity and mortality amongst millions of people living in Africa. The lack of proper drug use has been promoted largely over the years by the self-administration of the most common antimalarial drugs, particularly chloroquine (CQ). In many situations, practices that could best be described as misuse of drugs have become routine, and in some cases, promoted institutionally (17). This has further culminated into little interventions to improve the use of antimalarial drugs (18).

Efforts to promote the rational use of drugs have mainly been targeted at the formal health care services (2). These efforts were started by World Health Organization (WHO) who introduced the concept of essential drugs. The principle of this concept is that a limited number of drugs would lead to a better supply of these drugs, better prescribing,

and lower costs for health care. Despite the introduction of the essential drug list in over 100 countries, drug consumption still increased worldwide (19).

Regulations of availability antimicrobial drug are implemented differently in different countries and can play an important role in misconceptions about the use of antimicrobial. In addition, regulations (and their enforcement) also vary for the dispensation of prescription antibiotics (2). In Ethiopia most drugs can be obtained from pharmacies and drug stores without the requirement of a prescription. As a result, many diseases, including infections, are often treated with antimicrobials secondary to presumptive symptoms.

The reason to undertake this study was due to the fact that is the increasing health issues associated with inappropriate use of antimicrobial drugs, which is increasingly becoming a challenge in Ethiopia. In Ethiopia few studies have been done to quantify self medication practice in the community. Therefore, the purpose of this study was to estimate the prevalence of self medication with antibiotic and or antimalarials and identifying factors promoting in south Ethiopia.

MATERIAL and METHOD

A community based cross sectional survey was conducted from January 6 to February 28, 2008 in Werabe town of Silte Zone, located in South Ethiopia.

The sample size of 405 was determined according to the following assumption; as there was no previous study conducted in the study area, a 50% expected prevalence of self-medication with antibiotics and antimalarials, confidence interval of 95%, margin of error 5% and 5% of sample population was added to compensate for the loss. A sample of 405 adult persons was randomly selected from the town using a multi stage stratified clustered sampling technique. This was involved randomly selecting residential areas within the town. From the town 405 households were randomly selected. From each household one individual had interviewed.

A structured and pre tested questionnaire was prepared to collect the information. The validity of the questionnaires was assessed through in-depth discussion with experienced professors working in College of Public Health and Medical Science of Jimma University. The questionnaire was prepared in English and translated to local language, Silteigna, to achieve consent from town administrators and interview, then translated back to English.

Questionnaire consisted of both closed- and open-ended questions. In addition to questions on socio demographic information, the questionnaire included questions on general information on self- treatment with antibiotic and antimalarials and other associated conditions such as previous self medication with antibiotics/antimalarials, conditions for which antibiotics/antimalarials were self-prescribed, sources of the antibiotics/antimalarials, storage of drugs at home, sources of information on antibiotics/antimalarials and reasons for self prescribing of antibiotics/antimalarials. The questionnaire was pre-tested for content and design on 25 households. Then, modifications were done accordingly.

The collected data was cleared, categorized, and coded. All data collected were then analyzed using the Statistical Package for the Social Sciences (SPSS), version 16.0 software. Prevalence of self medication with both anti-biotic and ant-malarias was reported as percentage and 95% confidence interval and P-value less than 0.005 was considered statistic really significant.

This study was approved by the Ethics Committee of Jimma University. Verbal consent was obtained from each patient before the interview. The respondents were convinced to tell accurate information for the data included in the questionnaire. During data collection respondent was informed first about the purpose of the study and was assured that the information given would be kept strictly confident and used for research purpose only.

RESULTS

Four hundred and five (405) adults were included in the study, 114 (28.15%) of whom were aged between 18-25 years. Two hundred and thirty one, 231 (57%), were males. Three hundred and seventy, 370 (91.4%) of the study population were Silte by ethnicity and the majority were, 379 (93.6%), were Muslims. Two hundred and five, 205 (50.6%) were illiterate while only 44 (10.9%) of whom were the college and university graduates.

Forty eight, 48 (11.9%) were government employee while 49 (12.0%) were merchants.

One hundred and sixty three, 163 (40.24%) had a monthly income of less than 150 Ethiopian Birr (about < 14 USA dollar), while only 75 (18.5%) had incomes above 1000 Ethiopian Birr (\$60). There is statistical association between socio-demographic factors, monthly income (p value=0.006) and the self medication and very strong statistical association is found between level of education (p value=0.000) and self-medication. Even though males were more self-medicated than females, there is no statistical association is found between gender and self-medication. And also the risk of self-medication with antibiotics and antimalarials was higher among the middle aged groups (26-39) years though no statistical association is found between age and self prescription (Table1).

Table 1: Socio demographic and socio-economic parameters of the respondents.

Respondent characteristic	Self medicated (n=78)	Not self medicated (n=327)	p
Age	<18	9(11.54%)	0.150
	<18-25	18(23.08%)	
	26-39	24(30.77%)	
	40-59	21(26.93%)	
	>60	6(7.69%)	
Gender	Females	30(38.46%)	0.371
	Males	48(61.54)	
Monthly income	<150.00	18(23.68%)	0.004
	160-500	14(17.95%)	
	500-1000	27(34.21)	
	>1000	33(42.30%)	
Level of education	Illiterate	6(7.89%)	0.000
	Grade 1-4	2(2.6%)	
	Grade 5-8	10(13.16%)	
	Grade 9-12	16(21.00%)	
	Degree holder	25(32.05)	
	Diploma holder	15(19.23%)	

TAF Preventive Medicine Bulletin, 2012: 11(5)

Twenty seven (34.61%) government employee, had self-medicated themselves by antibiotics (48.15%), and by antimalarial drugs (45.45%). Most traditional medicines were used by farmers (57.14%) (Table 2).

Out of the 405 study population, 225 had illness in the past three month prior to the survey. Thirty eight, 38 (16.9%) of the sick population had used antibiotics / ant malaria with out a prescription or medical advice with in three month of the study period. Twenty seven, 27 (34.61%) of the sick people, had used antibiotics, 11 (11.10%) had used

antimalarias while twenty one, 21 (26.92%) of all the participants had reported to have used both during the months prior to the study period without any prescription. Nineteen, (24.36%) of the sick people had used self-medication with other modern drugs. Twenty one, (26.92%) had used other treatments like traditional medicine.

One hundred thirty nine, 139 (61.78%) of the ill people had visited health facility for their disease management (Table 3). Table 3 also shows the self prescribed antibiotics/antimalarials drug in the study area.

Table 2: Self medication of antibiotics/ antimalarials by occupational status of study respondents.

Occupation	Self medication with antibiotics	Self medication with antimalarials	Self medication with both	Self-medication with TM	Total
Students	3(11.11%)	2(18.18%)	2(9.52%)	1(4.76%)	8(10.26%)
Government employee	13(48.15%)	5(45.45%)	8(38.10%)	1(4.76%)	27(34.61%)
Farmer	6(22.22%)	1(9.10%)	2(9.52%)	12(57.14%)	21(26.92%)
Merchant	4(14.81%)	3(27.27%)	6(28.57%)	5(23.81%)	18(23.08%)
Other	1(3.70%)	0(0%)	3(14.29%)	2(9.52%)	6(7.69%)
Total	27(100%)	11(100%)	21(100%)	21(100%)	80(102.56%)

TM, Traditional Medicine

Table 3: Prevalence of self medication with anti-biotic /ant malaria and action taken when get sick.

Characteristics	Frequency (%)
Action taken when get sick (225)	
Self medication	78 (34.6)
Health facility	139 (61.8)
No action	8 (3.5)
General self medication (99)	
Self -medication with other drugs	19 (19.2)
Self -medication with antibiotics	27 (27.3)
Self-medication with antimalarials	11 (11.1)
Self medication with TM	21 (21.2)
Self- medication with both antibiotic and anti malarials	21 (21.2)
Self medication with antibiotics and or antimalarials (59)	
<i>Self-medication with antibiotics (27)</i>	
Amoxicillin	8 (13.5)
Ampicillin	3 (5.0)
Tetracycline	4 (6.8)
Norfiloxacillin	2 (3.3)
Ciprofloxacin	5 (8.5)
Doxycycline	3 (5.0)
Others*	2 (3.3)
<i>Self-medication with antimalarials (11)</i>	
Chloroquine	6 (10.1)
Pyrimethamine + Sulfadoxine	3 (5.0)
Chloroquine + Doxycycline	2 (3.3)
Self medication with both antibiotics and or antimalarials	21 (35.6)

*Erythromycin, Cloxacillin

Table 4: Source of drug, reasons of self medication and condition for which antibiotics/ antimalarias were self medicated.

Characteristic	Number (%)
Source of drug (78)	
Neighbors	4 (5.1)
Left over past prescribe	6 (7.7)
Kiosks	14 (17.9)
Pharmacy	46 (59.0)
Other*	8 (10.2)
Reasons of self medication (78)	
Low-cost alternative	6 (7.7)
Disease is minor	15 (19.2)
Avoiding waiting time	16 (20.5)
No time	10 (12.8)
Distance of health facility	7 (9.0)
Emergency case	13 (16.7)
Other [#]	11 (14.1)
Condition for which antibiotics & anti malarias were self medicated (125)	
Headache	30(38.5)
Fever	28(35.9)
Cough	11(14.1)
Diarrhea	8(10.2)
Abdominal pain	8(10.2)
Joint & back pain	28(35.9)
Nausea & vomiting	6(8.5)
Other [§]	6(8.5)

*, relatives, friends; [#], due to experience with similar previous ailments; [§], constipation, gastroenteritis

Table 4 describes the source of drug, reasons of self medication and condition for which antibiotics/ antimalarias were self medicated. Forty-six (58.97%) of the respondent who had self-medicated obtained the drugs directly from pharmacy or drug retail outlet. The most common reasons given for self-medication behavior was absence of waiting times involved with pharmacies (20.5%). Sixty three, 63 (80.77%) of the respondents who had self medicated were counseled by pharmacists about drug administration. Thirty (38.46%) of the respondent who had self-medicated had complained headache (Table 4).

Forty six (58.97%) of the respondents who had self medicated had awareness about potential side effects of the drug in which they had self prescribed. The study indicated that 56 (72%) of sick people can mention either category or specific name of the drug. Fifty nine 59 (47.2%) of the individuals used to store drugs. When asked about the reason of storing

medications, the majority of the respondents, 20 (33.90%) store drug for emergency case. Other reasons for keeping medication for other time includes fear of relapse, 12 (20.3%), minor illness, 14 (23.7%), and others (22.0%) store medication for no apparent reason.

DISCUSSION

Studies on self-medication with antibiotics/antimalarias are important to prevent the occurrence of resistance and eventual treatment failure. In developing countries people are not only using non-prescription drugs but also prescription drugs, as self-medication products, without supervision (9). The importance of understanding how antimalarial drugs are used in a community and consequently how their use might be improved draws

a considerable interest and concern in translating antimalarial efficacy into effectiveness in various settings in malaria-affected communities (18).

Generally prevalence of self-medication in the present study was 24.4%. This result is lower than several other studies done in Ethiopia; including study done in Southwest Ethiopia, which reported a prevalence of 31.5%, that done in three towns of Northwest Ethiopia reporting a prevalence of 27.2% and 38.5% (9,20,21). In addition, various studies carried out worldwide showed a range of self-medication practices between 15% to 80% (22-27). Reasons for wide variations may be due to differences in education, socio-economic status, non availability of medical facilities and easy availability of drugs. It also shows the degree to which people perceive their health-related problems and knowledge about where to go to get relief is different.

The prevalence of self-medication with antibiotics/antimalarials in this study is low (14.5%). This is not in agreement with study done in Sudan which showed high prevalence (73.89%) of self-medication with antibiotics/ antimalarials (1). This is may be due to the presence of the large number private pharmacies and poor regulatory authorities in that study area. In addition, inadequate amount of source of drugs in the might limited the self medication practice.

The findings presented in this study demonstrate that level of monthly income, educational status significantly influence pattern of antibiotics and antimalarial self medication unlike age and sex. Unlike several other studies, it was found that males practice more self-medication with antibiotics and antimalarials (57.14%) than females (42.86%) (1,20,22,28). However, the association between the use of self medication and sex is not statistically significant ($p>0.05$). The reason for higher prevalence of self medication practices in women in those studies might be due to the fact that their study were on general self medication practice unlike this study which mainly address the antibiotic and antimalarial self medication. Over 57% of the respondents had a monthly income of less than 1000 Ethiopian Birr (\$60) which significantly affected the self medication practice ($p<0.05$). Financial constraints were sighted as the major cause of practicing self medication by various other studies too (20,22-24,29,30). This also replicates WHO statement, self medication provides a cheap alternative to people who cannot afford to pay medical practitioners. Thus, self medication is often the first response to illness among people with low-income (31, 32)

The study showed that the majority (20.51%) of the respondents practiced self medication to avoid waiting time at the over burdened health facilities similar to study done in Sudan (1). However, Solomon Worku et al and Teferra Abula et al mentioned that the reason for self medication could be due to absence of more health facilities and insufficient service which also the concern of some of the respondents in the present study (20,21).

The top three diseases that led to self medication in this study were headache (38.5%), fever (35.9%), and cough (14.1%) replicating similar studies in France and Brazil (33,34). This probably shows that fever are taken as an important signal that made patients visit health facility. Thus, the type of illness was a contributing factor to the patient's manner of response towards their illness. Like Sudan study, among self-medicated antibiotics, Amoxicillin (13.5%) followed by Ciprofloxacin (8.5%) were the most commonly used class of drug (1). From antimalarial drugs Chloroquine (10.1%) were highly abused.

The main source of antibiotics /antimalarials was pharmacies (58.97%) followed by shops (Kiosks) (17.95%). Solomon Worku et al also uncovered the availability of drugs at informal sectors including open market (19.0%), kiosks(7.1%) and also retail drug outlets where majority of drugs (52.4%) are obtained contribute largely for rampant practice of self-medication (20). Though regulations that categories most of these drugs as prescription drugs only exist, regulatory authorities often lack resources to enforce them. Even if enforcement was possible, having and enforcing a strict prescription policy with out providing adequate and affordable access to medical consultation and treatment, might exclude the poorest from accessing drugs, leading to increased morbidity from other wise treatable infection diseases (1).

A significant proportion of sick people who practiced self-medication (19.5%) didn't receive instruction as to the use of drugs. Pharmacist, are required for dealing with patients for disseminating drug information. The study showed 58.97% of sick people who practiced self-medication had no idea that drugs have potential side effects which could be due to unavailability of drug information services. However, over two third of the of sick people who self-medicated with antibiotics and antimalaria can mention either category or specific name of the drug like study done in Addis Ababa were 66.7% of the respondents were able to mention either category or specific name of the drug (35).

Even though the present study has some shortcomings potential for recall bias including the probability that the self-medication practicing individuals had forgotten which medication and when and for which ailment he/she had been used as well as the fact that the scientific name of the drug might not be known by the patient, and bias by the professionals who collected the data, we believe the study addressed an important issue as self-medication with antibiotics and antimalarial drugs could be considered as one of the public health problems in a population where there is lack of wide controlled medical education.

CONCLUSION

The prevalence of self-medication with antibiotic/antimalaria in the study community was low. Self medication tended to be higher in people with a higher education and those on higher monthly incomes. The major reason for self-medication is found to be to avoid waiting time at health facility. Community pharmacies are the major source drugs. Pharmacy personnel must demonstrate their willingness to be responsible for the patient's drug therapy and should effectively counsel/provide drug information when dispensing drugs. Furthermore, drug law enforcement authorities need to have clear and effective legislation on drug handling and dispensing, and necessary measures should be taken on illegal surveyor of drugs.

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TAF Preventive Medicine Bulletin, 2012: 11(5)

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