EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH
www.ejpmr.com

COMMUNITY LEVEL EVALUATION OF SELF-MEDICATION PRACTICES IN STATE OF KERALA

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ABSTRACT

Self medication of drugs, especially antibiotics have been a major cause of concern, especially in the developed countries, where people are able to procure drugs without a proper prescription from the physician. The major concern with this pattern of drug use is the emergence of antibiotic resistance. This has been voiced by the WHO also. Unnecessary antibiotic usage for diseases that require only symptomatic treatment, and injudicious use of broad spectrum antibiotics for pathogens that are highly specific and sensitive towards a narrow spectrum antibiotic are all leading to the evolution of multidrug resistant pathogens. These deadly microbes can make the management of sepsis and concomitant infections, especially in the immunocompromised patients highly cumbersome and complicated. A thorough and stringent check on the injudicious use of antibiotics is highly warranted. This study analyses the socio-economic, educational and regional factors that affect the practice of self medication, and also describes the various factors that may trigger and maintain the same, along with their proportional influence. With the idea of where and why the practice of self medication is more prevalent, it would be helpful for the appropriate institutions to place a check on the same. This cross-sectional, questionnaire-based study was conducted over a six month period among population of Kerala. It involved online survey regarding self-medication of 200 respondents selected by simple random sampling. **Results:** Self-medication was reported by 77%. Commonly used analgesic drug was Paracetamol and antibiotic was Amoxycillin. Sore throat and headache was the most common condition for which self medication was done. 34% responded that major reason for self medication was it is less expensive in terms of time/money.

KEYWORDS: Prescription drugs, Antibiotics, Self medication.

INTRODUCTION

Self-medication has been defined as the use of medication (modern and/or traditional) for self-treatment without consulting a physician either for diagnosis, prescription, or surveillance of treatment. It involves obtaining medication without prescription and taking medicines on advice of and from friends and relatives.[1,2,3] Self-medication is common in both developed and developing countries but higher in developing countries, due to wider increase of drug availability without prescription. Self medication increases the possibility of drug abuse and drug dependency. It also masks the signs and symptoms of underlying diseases, hence complicating the problem, creating drug resistance, and delaying diagnosis. Self-medication has been reported to be on the rise globally.[4,5,6,7]

World Health Organization (WHO) emphasized that self-medication must be correctly taught and controlled in other to avoid drug-related issues such as antimicrobial resistance which is now a current problem worldwide particularly in developing countries where antibiotics are often available without a prescription. Due to insufficient medical facilities, the free accessibility of over-the-counter (OTC) drugs in the local market it is now becoming a very common occurrence in numerous countries of the world.[8-12]

Other reasons for self-medication are the shortage of time to visit a physician, inability to get a quick appointment, mild illness, long distance of hospitals and clinics from home, and finally unaffordable doctor's fees. Information from online sources, magazines or periodicals makes people courageous about treating their own illness. Several studies revealed a range of factors that affect self-medication practice. Accordingly, the socio-demographic factors include sex, age, monthly income, level of education, residence, religion, marital status and field of study.[13,14,15]

Moreover, the source of drugs for self-medication such as community pharmacies, drug stores, unused drugs stored at home, friends and relatives are repeatedly reported in numerous relevant literatures. Such sources of drugs greatly influence, contribute and facilitate the occurrence of SM practice. Largely, self- medication has a strong relationship with sources of information such as pharmacists, physicians/nurses, but without prescriptions and friends or relatives.[16,17]

MATERIALS AND METHODS
STUDY DESIGN
The study is a community based cross-sectional questionnaire based study held at Kerala. The study was conducted over a period of six months after obtaining Institutional Ethics Committee clearance.

STUDY PARTICIPANTS
The study included 200 adults with different socioeconomic backgrounds from different districts of state of Kerala. Before data collection each and every participant was clearly informed about the purpose of the study and consent was taken from each of the respondents.

PARTICIPANTS AND ELIGIBILITY CRITERIA
This study included only those respondents who were easily available for data collection and
interested to provide information willingly. Those who did not feel comfortable to give information were excluded from the study.

SAMPLING AND SAMPLE SIZE
A simple random sampling technique was used for the selection of study participants. The sample size was calculated assuming that 50% of the population had a tendency of self-medication practice with 5% margin of error and 95% confidence interval. The sample size was calculated to be 200.

INCLUSION CRITERIA
1. > 18 yrs. of age
2. Both Male and Female.
3. Willingness to participate in the study

EXCLUSION CRITERIA
1. Psychiatric patients
2. <18 yrs. of age
3. Not willing to participate in the study
4. Very sick and bed ridden patients

STATISTICAL ANALYSIS
The collected data were entered in MS Excel master sheet and analyzed using SPSS Version 20.0.

DATA COLLECTION
The procedure of data collection was segmented into three steps. The first step was to fill out the questionnaire including socio-demographic information by the study subjects. The second step was to discuss the study protocol, and the final step was to cross-check the questionnaires filled by the respondents. The questionnaire was adopted from a formerly published similar studies.

RESULTS AND DISCUSSION
Table 1: Sociodemographic characteristics of respondents. (N=200)

Characteristics	Percentage (%)	Characteristics	Percentage (%)
Gender		**Use of antibiotics in the past one month**	
Male	45%	Yes	34%
Female	55%	No	66%
Age		**Conditions which antibiotics were used**	
<18	12%	Sore throat	24%
18-30	34%	Bronchitis	12%
30-60	32%	Gastroenteritis	21%
>60	22%	Urinary tract infection	7%
Background		Cough	15%
Medical	12%	Others	21%
Non medical	88%	**Use of analgesics in the past one month**	
		Yes	78%
		No	22%
Level of educational status			
Diploma	34%		
Degree	66%	**Conditions analgesic was used for (multiple answers allowed)**	
Post graduation		Headache	34%
Higher than PG	55%	Stomachache	12%

Category	45%	Body pain	24%
BPL		Muscle pain	21%
APL	20%	Dysmenorrhoea	9%
Areaof residence	49%	Fever	21%
Urban	27%	Cough/cold	27%
Rural	4%	Arthritis pain	14%
Monthly income		Others	12%
<15000	8%	**Commonly used analgesics**	
15-30000	22%	Paracetamol	62%
30-60000	34%	Ibuprofen	34%
>60000	36%	Aspirin	4%
Occupation			
Non skilled	12%		
Skilled	54%		
Retired	21%		
Student	13%		

Table 2: Self medication behavior of antibiotics.

| Questions	Percentage (%)	Questions	Percentage (%)
Have you ever taken antibiotics?			
Yes	95%	A. Type of antibiotics	7%
No	5%	B. Brand of antibiotics	20%
Have you ever treated yourself (self-medicated) with antibiotics?		C. Price of antibiotics	40%
Yes	77%	D. Indications for use	35%
No	23%	E. Adverse reactions	5%
What was (were) your reason(s)		**Did you ever check the instructions come with the package insert of antibiotics for self-treatment?**	
A. cost saving	32%	A. yes always	45%
B. Convenience	45%	B. yes, sometimes	40%
C. Lack of trust in prescribing doctor	23%	C. never	15%
How much did you understand the instructions?		**How you know the dosage of antibiotics?**	
Fully understood	55%	A. By checking the package insert	5%
Partially understood	40%	B. By consulting a doctor	24%
Nothing	5%	C. By consulting a pharmacist	45%
When did you normally stop taking antibiotics?		D. By consulting family members/friends	12%
A. After a few days regardless of the outcome	12%	E. From the newspapers, magazines, books, or TV programs	0%
B. After symptoms disappeared	34%	F. From the Internet	4%
C. A few days after the recovery	7%	G. From my previous experience	10%
D. After antibiotics ran out	5%	H. By guessing the dosage by myself	3%
E. At the completion of the course	40%		
F. After consulting a doctor/pharmacist	2%		
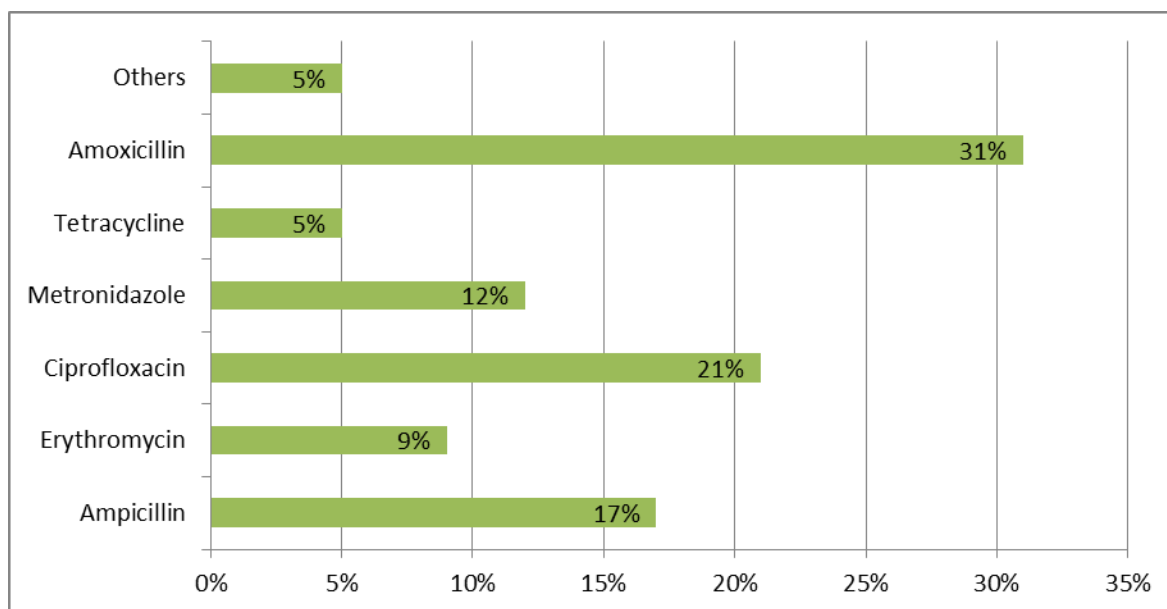
Figure 1: Pattern of Antibiotic   use for self-medication.

Table 3: Reason to self-diagnosis and self-medication

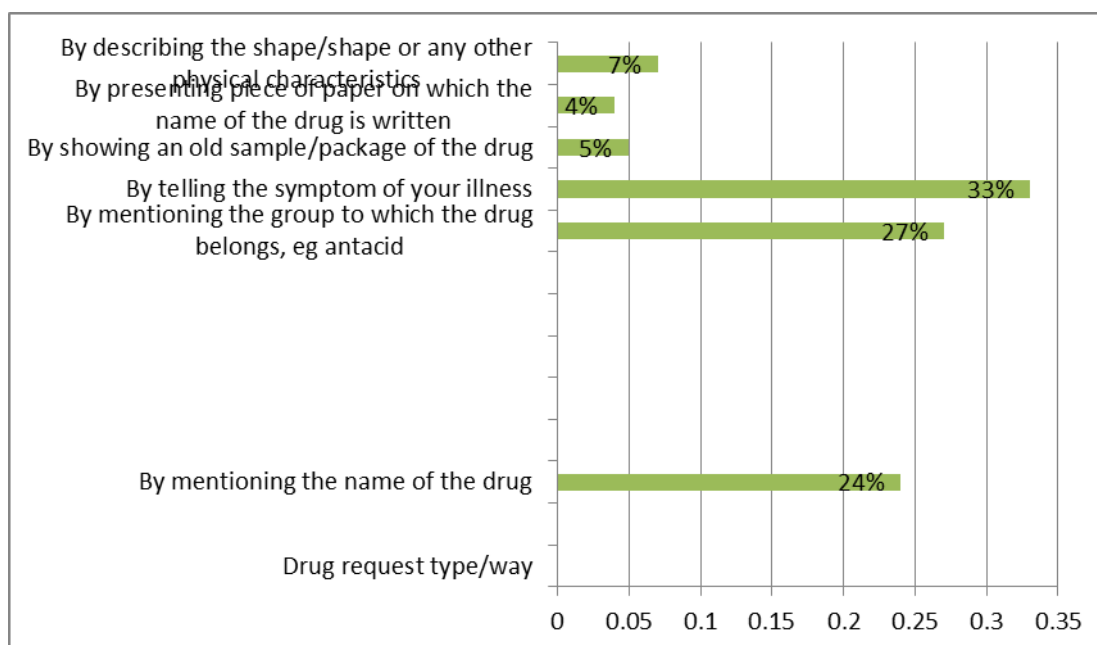| Reason to self-diagnosis and self-medication	Percentage (%)
Disease is not serious	7%
Emergency use	33%
Prior experience about the drug (own and/or friends, read about it, etc.)	20%
Less expensive in terms of time/money	34%
For prevention of known/unknown disease(s)	6%

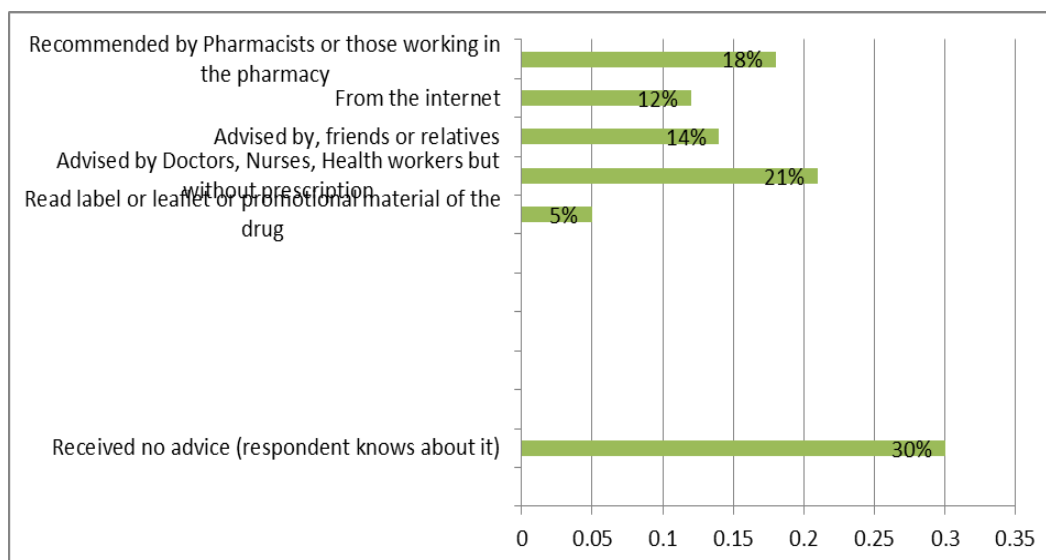
Figure 2: Drug request type/way.

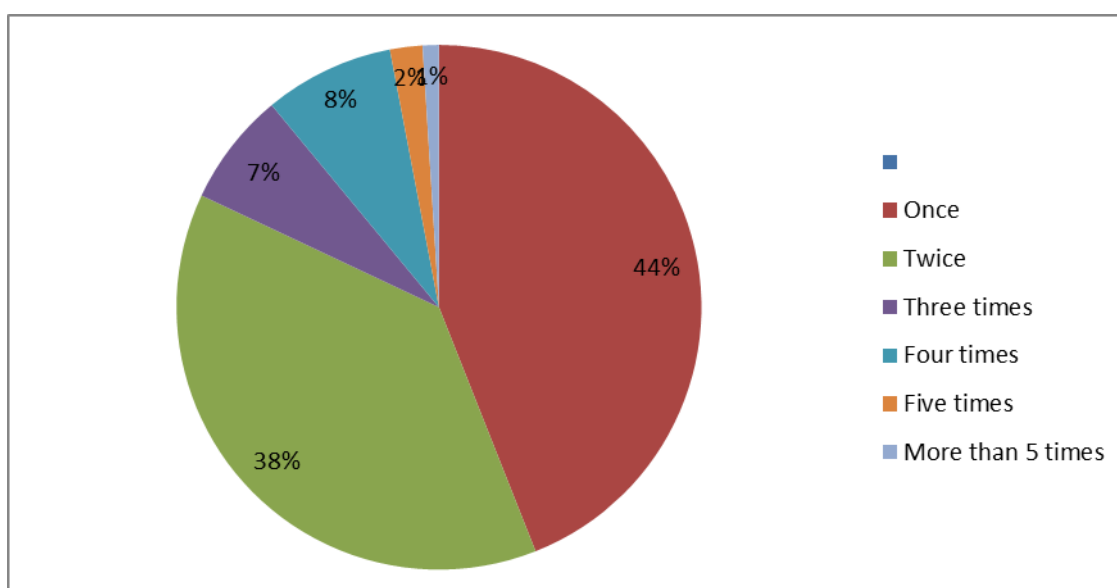**Figure 3: Sources of information/advice for self-medication.**

Figure 4: How frequent do you visit a community pharmacy to purchase drugs without prescription for yourself or for someone over the last 6 Month?

Table 4: Association between sociodemographic characteristics and self-medication practice.

Characteristics	Self medication	P value
Gender		
Male	25%	0.03
Female	75%	
Age		
<18	32%	
18-30	12%	0.004
30-60	14%	
>60	42%	
Background		
Medical	44%	0.005
Non medical	24%	
Category		
BPL	77%	0.001
APL	45%	
Area of residence		0.002

Urban	23%	
Rural	45%	
Monthly income		
<15000	60%	
15-30000	39%	0.001
30-60000	17%	
>60000	4%	
Occupation		
Non skilled	38%	
Skilled	22%	0.004
Retired	34%	
Student	16%	
Level of educational status		
Diploma	54%	
Degree	26%	0.005
Post graduation	13%	
Higher than PG	7%	

The study was conducted in Kerala to estimate the prevalence and the factors that influence the pattern of self-medication. Self-medication was practiced by 77% of individuals in the past six months recall period. This was similar to the study conducted in North India and Nepal with the prevalence rate of 62% and 59% respectively. The study result had shown a higher percentage of self-medication practice was among females than males. It was similar to the study done in coastal regions of India and Spain but contradicts the finding in the study done in North India. This may be because females suffer from many acute and chronic conditions than men and this has led to more drug use.

Regarding self-medication frequency, 44 % self-medicated once and 1% self-medicated more than five times in the past six months recall period. Self-medication practice was high among non-skilled workers than students, skilled workers and retired persons. The predominance may be due to lack of knowledge and awareness on side effects and other complications associated with self-medicated drugs. There was a higher percentage of self-medication practices among illiterate respondents than literates. Iliterates consider the illness as simple and most of the time self-medicate themselves to avoid unnecessary hospital expenses. Based on income, low class family self-medicate more when compared to other income groups which was similar to the observations from a study done in china.

Amoxicillin was found out to be the most widely self medicated antibiotics, and the majority of the cases of self medication were for cost saving. The major portion of the study sample used the drug without receiving any advice about the drug nor its usage. 75% of the study subjects that self medicate themselves are females. 44% of the sample population had some form or the other of medical background. 77% of the study sample belonged to the below poverty line category, and 60% of the sample were from a household with monthly incomes less than 15,000.

Even though the study was based on few population samples of Kerala, and further meta analysis is required for more specific numbers, the external validity of the study cannot be dismissed. 45% of the study population choosing self medication over prescription did so in terms of convenience, which was more than the considerations of the cost of the medications. And a major share of the self medicators are from the lower socio - economic strata, which should prompt us to think about the complex nature of the health system functioning, and the associated ancillary costs of public health services. A fat chunk of the study subjects were obtaining information about the drugs from healthcare professionals without a prescription, and also the dosage being learned from the pharmacist. An awareness among the healthcare and the supporting systems of services should be made to discourage the practice of self medication. More than half of the study subjects learning about the drug from the instruction that comes along with it, the pharma companies have to mandate themselves to promptly label against sales without a prescription. Since procurement of leftover drugs was also seen to hold a substantial share in the source of self medications, a stringent check on the dosage and the required quantity of medicines prescribed should also have to be monitored. Another source of knowledge about these medications being the commercials, it has to be made sure that the advertisements should also warrant against the use of the drugs without a prescription.

A statistical significant difference was noted in self medication practices between male and female subjects. 75% of the study subjects that self medicated themselves were female. When the study population is assessed for self medication practices according to their age, it was found that three fourth of the study subjects that self medicated for diseases where either above 60 years of age or less than 18 years of age - 42% of the total study population that self medicates falling in the above 60 age group, and 32% falling below the 18 year age group. 44% of the study subjects that self medicate themselves

were from a medical background. Another interesting fact was more than 75% of the study subjects who procure medicines without appropriate physician consultations were belonging to the below poverty line economic class. Similarly 60% of the study subjects practicing self treatment were from households with monthly income less than 15,000. 45% of study subjects in the group were residing in a rural area. 38% of the study subjects in the group were non skilled labourers.

33% of the population chose a particular drug based on the characteristics of the illness. 7% of the study population that self-medicates did so because of the assumption that the disease was not a serious one, while 33% opted for the practice for the reason of emergency, and 20% for the reason of having prior experience of using the drug. 34% of the population that self medicated themselves made the choice based on monetary benefits in terms of opting a cheaper drug or surpassing the expenses to meet with the physician. The study also showed that among the population, Amoxicillin was the most misused drug, followed by Ciprofloxacin and then Ampicillin. While 21% of the study subjects procured information about the drug from a health professional sans a prescription, while 30% of the subjects procured sans any advice.

75% of the time the subjects tried to self medicate themselves were with antibiotics in which amoxicillin being the most misused, and the other class being analgesics, with paracetamol being the most. Majority of the patients chose self medication for fever, cough and cold.. Only 40% of the study population completed the known course of the antibiotic treatment, while others discontinued the treatment as the symptoms resolved or they felt a subjective sense of cure. Only 55% of the subjects did have a full grasp on the instructions to use the drug, while more than 50% of the subjects never even tried to read the instructions before usage. 45% of the subjects understood the dosing from the pharmacist. 40% of the subjects were concerned about the cost while choosing the self medication.

CONCLUSIONS
This descriptive study has demonstrated that self-practice of medication is very common among the population of Kerala. The use of antibiotics and analgesics without proper follow up or lab tests by healthcare providers may lead to serious health hazards. From our study it was found out that gender, age, income, educational status, occupational background, area of residence and APL/BPL category all have significant association with self medication in Kerala.

Therefore, it is the sole responsibility of the health care professionals and drug regulatory authorities to ensure the safe use of drugs and control the exercise of self-administration of medications by describing the total impact of the drugs on the body. Drug information centres can be established and usage of services of

clinical pharmacist by giving proper patient counseling can improve the drug misuse to a certain extend. As the study was confined to few population across various districts of Kerala, further research is needed to test the prevalence of self-medication practices among the general population. Furthermore steps should be taken to monitor the drug selling system by stake holders especially of those drugs with potentially harmful effects.

AUTHOR CONTRIBUTIONS
All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; have agreed on the journal to which the article will be submitted; reviewed and agreed on all versions of the article before submission, during revision, the final version accepted for publication, and any significant changes introduced at the proofing stage; and agree to take responsibility and be accountable for the contents of the article.

DISCLOSURE
The authors report no conflicts of interest for this work.

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