

# An epidemiological study on the prevalence of self-medication practises: a serious threat for the population in the Muvattupuzha region in Kerala, India

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## ABSTRACT

This study is an investigation on Self medication, defined as the ‘use of a product without medical prescription or consultation in order to prevent or treat a disease or a symptom or to promote health’. The main issues in self-medication are improper usage of resources, OTC abuse, pathogen resistance and potential side effects with prolonged suffering in many of the cases. A prospective, cross-sectional questionnaire based study was carried out among 450 people selected by random sampling in the Muvattupuzha, Kerala, region. The main objectives of this study were to find out the reason and type of illness for which people self-medicate, prevalence of self-medication during pregnancy, self-medication with antibiotics and pharmacist’s approach while dispensing the OTC drugs. In the study, it was clear that a majority of the population self-medicate which includes the prescription drugs and even antibiotics. Self-medication is a serious public health concern; the remedy is to provide health education and which is the responsibility of all the pharmacists.

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**KEYWORDS:** Self-medication, epidemiological study, Kerala, antibiotics, pregnancy

## INTRODUCTION

Self-medication is the practise of using medicines without prior medical consultation and proper knowledge about the right indication, dosage and duration of treatment. It is a common practice worldwide to opt self-medication as their first choice in most illness episodes [1]. According to the World Health Organisation ‘self-medication is the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent diseases or symptoms’ [2]. The society prefers self-medication at times due to easiness and time saving with saving costs.

Self-medication has its own consequences, which can cause unexpected financial burden as it may produce unintended reactions that may further require medical attention. Many studies have reported adverse reactions with commonly used prescription drugs and OTC products, so their inappropriate use may result in irrational drug therapy and delay in seeking medical care and sometimes which can cause side effects.

In addition, several studies conducted on self-medication showed the wide usage of insufficient or improper uses of antibiotics and other prescription drugs. The prevalence of

self-medication depends on many factors like education, gender, socioeconomic status and availability of medicines [3].

Problems of self-medication: Inappropriate self-medication, incorrect or a delayed diagnosis of a severe medical condition, financial load on the patients and their families, The patient is exposed to unwanted medicines that may cause a harm, home remedies and herbs which are not completely risk free may worsen the patient’s condition.

### Site of the Study

The study was conducted in the Muvattupuzha region. Muvattupuzha is a main town located nearly 8km away from the pineapple city of India (vazhukulam). Located at sea level, this town is situated 42km east of ernakulam. Muvattupuzha is believed to be the origin of 3 arrays, namely kothamangalam, sivas and thodupuzha. Muvattupuzha is a part of ernakulam district which is located between mc road, thrishur and Kottayam.

### Demographic Data

Total area-13.18km<sup>2</sup>, Elevation-15m, Population-total- 41973, Density- 2306.3/km<sup>2</sup> or 5973/m<sup>2</sup> [4].

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## STUDY DESIGN

A cross-sectional observational study on self-medication was conducted in and around Muvattupuzha region during the period September 2017 to February 2018.

Sample: A total of 450 subjects (male & female) were included in the study and were categorised into 3 age groups (18-25yrs, 25-55yrs and >55yrs). Those aged above 18yrs were considered as the subjects for the study. The subjects were selected randomly and a questionnaire based data collection was done in person.

The questionnaire consisted of 21 questions which gives the following information: demographic details, prevalence of self-medication and its reasons, source of information for self-medication, pattern of self-medication using antibiotics, incidence of self-medication among pregnant and lactating women.

### Inclusion Criteria

- Those aged above 18 years of age

### Exclusion Criteria

- Practising medical professionals.
- Those aged below 18 years of age

### Data Analysis

All data were statistically analysed by using SPSS. ANOVA was used to determine if there was significant difference in self-medication between different age groups, student's t test to determine if there was significant difference in self-medication between male and female. The Pearson's Correlation Coefficient was also found between different age groups and also between male and female.

## RESULT AND DISCUSSION

The response rate of the epidemiological study was 100 percent as the complete data was collected by direct interview with all the subjects. Approximately 81.77% of the subjects reported that they self-medicate as shown in table 1. Most of the respondents were females (60.44%) and this data is represented in table 2. The most common conditions for which the subjects self-medicate are, fever(92.1%), cold(87.2%), cough(70%), headache(64.33%), stomach pain(43.66%), allergy(20.1%). The most common class of medications used was analgesic in particular paracetamol, cold and cough relievers.

### Demographic details of the respondents

The respondents were categorised into three different age groups; 18-25, 25-55,55 and above. The first group accounts for 39.55% of the entire subjects, 32%by the second group and 28.44% by the third group.Males occupied 39.55% of the subjects and females60.44%. 47.33% of the subjects were

married. 29.33% of study population were students, 22.22% were service-oriented, 21.33% were in business field, 22.44% were housewives and the rest 4.6% did other jobs.

### Types of Treatment

The type of treatment the subjects preferred were obtained as- Ayurveda (10.44%), Allopathy (75.33%), Homeopathy (10.44%), Naturopathy (3.77%). Majority of them stated of their belief of having quicker relief with allopathy medicines. Those who preferred ayurveda, homeopathy and naturopathy stated that, they opt this treatment because they believe that these are side effect free. For minor illness 38.22% of the patients preferred home remedies, 23.55% visited a medical store, 16.22% took left over medicines, 11.11% consulted a doctor, 9.55% take medicines from the neighbour and 1.33% did nothing.

### Reason for Self-medication

The result for the reasons for self-medication are represented in the graph no-1. The data collected represents that 46.21% of subjects self-medicate because illness was minor, 28.77% for convenience and 4.88% for cost saving.

### Source of Information

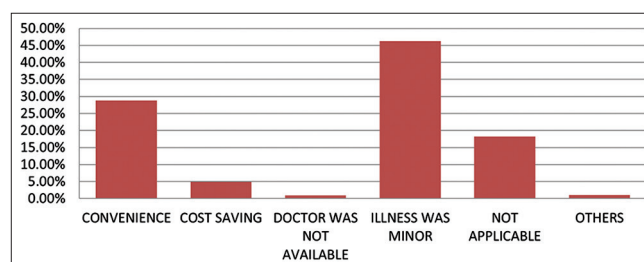
As shown in figure 6.1; 34.22% of the people get the knowledge to self-medicate from the previous prescription, 9.77% from pharmacy, 5.77% from internet, and 3.11% from advertisement.

Table 1: Pattern of self medication

Category	Number of subjects involved	Percentage
Self-medicating	368	81.77
Non self-medicating	82	18.23

Table 2: Demographic details of the respondents

Variables	Number (%)
Age	
18-25	178 (39.55)
25-55	144 (32)
>55 years	128 (28.44)
Gender	
Male	178 (39.55)
Female	272 (60.44)
Marital status	
Married	213 (47.33)
Single	237 (52.66)



Graph 6.1: Reasons for self-medication

### Side Effects Reported After Self-medication

Majority of population did not experience any sort of side effects after self-medicating as shown in figure 6.2. Only few of them experienced non-serious side effects such as stomach pain, lack of hunger, acidity, skin rash, headache etc.

### Reason for Consulting Doctor Even After Self Medication

As depicted in the graph 6.2; 37.11% of the population had relief after self-medication. But 53.76% of the population had to consult the physician as they had no relief even after self-medication. As per the study, the subjects reported of their practice of waiting for few days to see if the disease subsides by itself or by some own remedies or else they visit a doctor. Many of them stated that they visit the doctor only when they move on to a situation when the condition cannot be handled by themselves and feel like it may become complicated.

### Self-medication Pattern

About 20% of the population reported that they buy medicines using older prescription without consulting the doctor again as shown in 6.3.

### Self-medication with Antibiotics

The self-medication pattern using antibiotics is shown by graph 6.4. Among the subjects selected only 17.33% had the practice of self-medication with antibiotics and most commonly misused was amoxicillin and azithromycin. Majority of the population were unaware about the complications of self-medicating with antibiotics.

Antibiotics are drugs used against infections. 51.77% of the population stated that they knew this actual use of antibiotics. They are well aware about its use. For 15.77% it was used for fever and 18.88% considered it as a pain reliever and 13.55% knew nothing about it.

### Self-medication for Children

As per figure 6.3 self-medication pattern in children by their parents was least in the study population. Most of them stated in the survey that they directly consult the physician even for minor illness in their children. Some parents used the left over medicines and some initially tried with some home remedies and if not resolved, took them to the physician.

### Self-medication Pattern During Pregnancy and Breast Feeding

Self-medication pattern during pregnancy and breast feeding is represented in graph 6.6. Among the population none of them reported that they self-medicated during pregnancy and only 1% self-medicated during breast feeding.

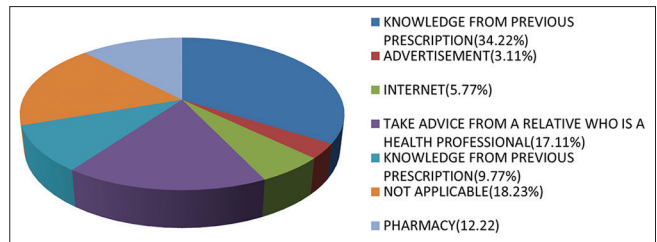


Figure 6.1: Source of information

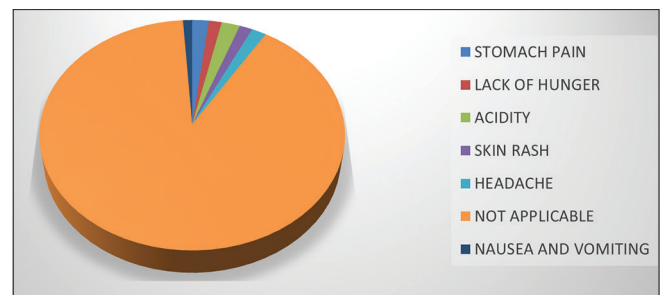


Figure 6.2: Side effects reported after self-medication

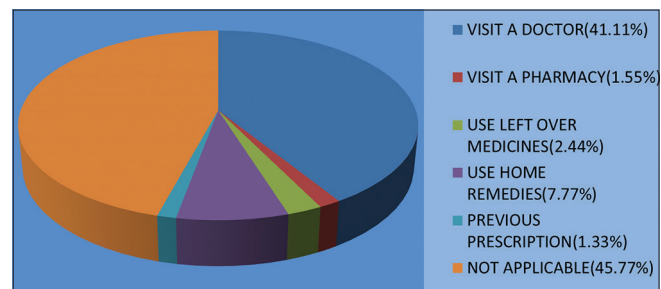


Figure 6.3: Treatment chosen when a child becomes ill

### Confidence Level in Self-medication

The percentage of people showing confidence in self-medication is about 67% and those with low confidence are about 33%.

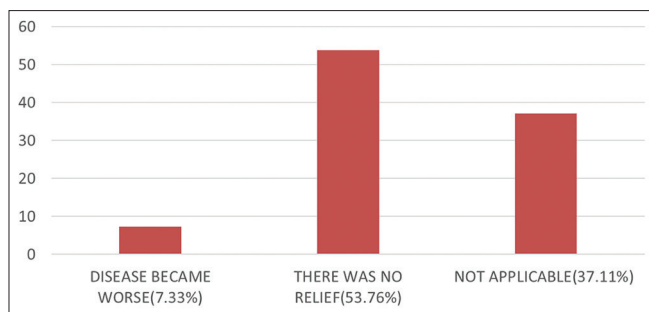
## STATISTICAL DESCRIPTIONS

### ANOVA for Age Groups

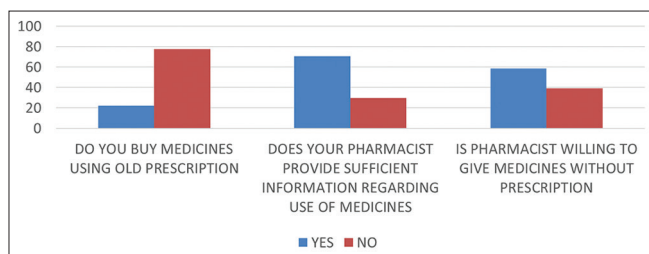
ANOVA was done to see if there was significant difference in self-medication between different age groups. The significance value obtained after the ANOVA test is 0.874. So the age groups do not differ significantly based on self-medication.

### Student's t-test

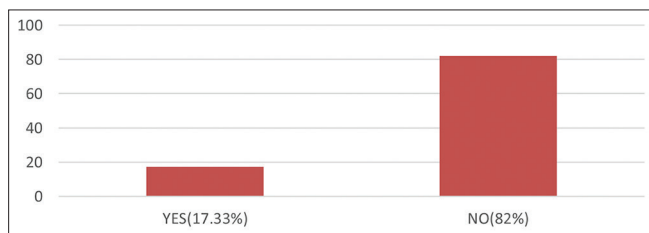
Student's t test was done to see if there was significant difference in self-medication between men and women. The significance value obtained after the Student's t-test is 0.00. So the males and females differ significantly based on self-medication. The female population was found to self-medicate more than the male population as per our survey.



**Graph 6.2:** Reason for Consulting Doctor Even After Self Medication



**Graph 6.3:** Self-medication pattern using previous prescription and the approach of pharmacist



**Graph 6.4:** Self-medication with antibiotics

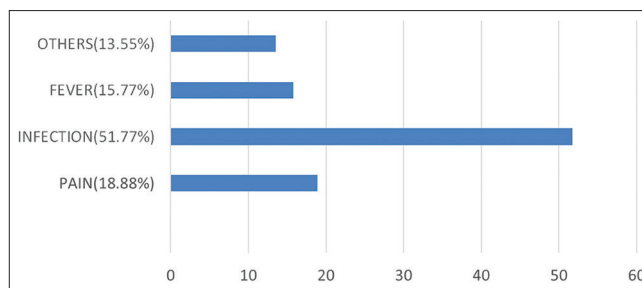
### Pearson Correlation Coefficients

Pearson correlation coefficients was found between different age groups. A positive correlation was found between age groups 18-25 and 25-55; 25-55 and >55yrs. A positive correlation was also found between male and female.

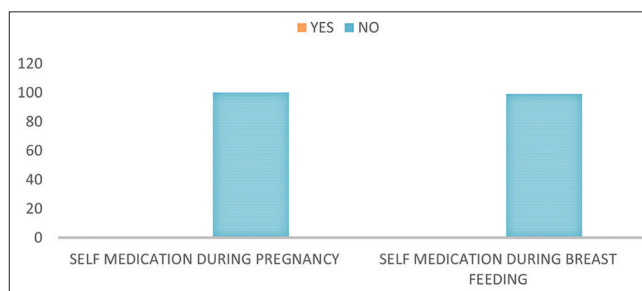
### DISCUSSION

As per our survey, generally people reported the tendency to self-medicate with OTC medicines or other traditional remedies when they suffer from common ailments such as fever, heart burn or constipation.

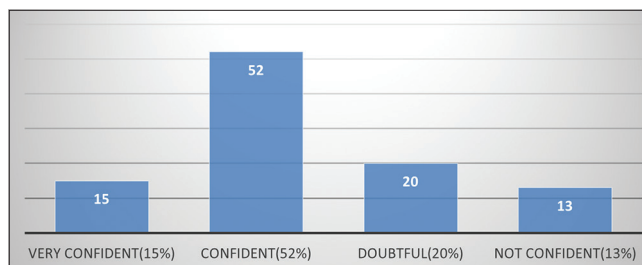
Modern consumers (patients) wish to take a great role in the maintenance of their own health and they are unwilling to submit themselves to the inconvenience of visiting a doctor by standing in the long queue, if they can manage the condition by themselves. Some of them reported that meeting the physician is of building unnecessary cost, and instead they can easily purchase the medication from a medical store. At times simple conditions which initially seem benign may be complicated, which requires the medical attention during the beginning itself. For eg, angina is often mistaken as a heartburn first. It is the



**Graph 6.5:** For subjects antibiotic means a drug for



**Graph 6.6:** Self-medication pattern during pregnancy and breast feeding



**Graph 6.7:** Confidence level in self medication

responsibility of the pharmacist to enquire about their illness, the source, and understanding of the information regarding the medicines and to educate regarding the pros and cons of self-diagnosing and self-treating and finally to encourage them to refer to a registered medical practitioner.

Majority of them acquire their information to self-medicate from non-reliable sources. Internet, play a major part in directing people in self-diagnosing and treating. Many diseases may have the same symptoms and require differential diagnosis or else may go wrong. People tend to buy products that have the best advertisement. Some people consider the medicines that are well advertised to be superior than the others and as the right medicine for their illness without further looking on to the side effects, efficacy and whether the medicine can be actually used in them.

The subjects claimed to use drugs that were considered to cause less or no side effects. The reduced incidence of side effects might be one of the reasons for the rise in self-medication. Generally people lack the technical information regarding the side effect, doses, frequency, age specifications and dosage form of the medicines and that might be the reason to claim and

consider the medicines as per their experience into different safe categories.

Reusing the prescription drugs (schedule H1) without consulting the doctor is a serious form of self-medication and is because some drugs are meant to be given for a short period of time or stopped after gradual tapering of the doses. In some cases the decision to continue with the same medicine is taken after considering the person's clinical and lab outcomes which a common man can't do by himself correctly. This practise was commonly seen in patients with chronic illness like diabetes.

As shown in graph no: 6.3 nearly 60% of the population reported that pharmacist is willing to dispense medicines without a prescription, this includes even antibiotics. This is a serious fall in responsibilities of a pharmacist. Some subjects stated that the pharmacists give antibiotics based on the symptoms they said and some used to buy antibiotics that were previously prescribed to them. 70% of the population stated that the pharmacist provide sufficient directions for the proper use of medications. Hence, the quality of professional practice of community pharmacy in the Muvattupuzha region is better when compared to other places.

As represented in graph no: 6.5 many of the subjects claimed antibiotic as a drug for pain, fever etc. Lack of the proper knowledge of the indication of antibiotic make them to self-medicate with it for any sort of infection, be it viral, fungal or any origin leading to the development of resistance and hence should be discouraged. WHO says that where antibiotics can be bought for human or animal use without a prescription, the emergence and spread of resistance is made worse [5].

As per CDDEP resistance map, in India 60% of Escalar was resistant to aminoglycosides (2009) and 13% to carbapenem (2012), 89% to fluroquinolones (2011). By 2010, 44% Paureginosa became resistant to aminoglycosides, 84% to fluroquinolones, 89% to ceftazifime and 62% piperacilin/taxobactum (2014) [6].

The WHO recently commissioned a survey carried out in 12 of its member states and the majority of the respondent's surveyed report having taken antibiotics within the past 6 months of their study [7]. In a survey of public knowledge and attitude with regard to antibiotics in Poland showed a high percentage of Polish adults had used antibiotics and statistically relevant differences were observed regarding the respondents' age, gender and employment status [8]. Another study regarding public knowledge and behaviours concerning antibiotic use and resistance in France showed that inappropriate behaviours were frequent, especially non-adherence to dosing schedules and to treatment duration and self-medication practices [9]. The major concern raised by the people during the study was how to differentiate between an antibiotic and other medications. Antibiotics commonly subsides the symptoms within the first few doses, and a few of the respondents stated that they discontinue the antibiotic regimen when they get symptomatic relief. Community pharmacist is one who directly mingles with the patients so has a great role in providing awareness about the rational use of antibiotics like educating them regarding

its use and the essentiality of completing the course of the antibiotic regimen.

Medicines have to be used cautiously in children. The dose of medicines used in adult and children may not be the same; in children it is to be calculated based on their age and body weight or else it may cause serious consequences. In some cases the child dose has to be higher than the adult dose like gentamicin [10]. Also all drugs used in adults cannot be used in children like the use of mefenamic acid in children under the age of 12 except for temperature above 102F [11]. As by the recent review by the FDA there was an increase in the number of hospitalisation for acetaminophen poisoning in children 6 years and elder and FDA states that "improper dosing is one of the biggest problems in giving acetaminophen to children" [12]. As per the survey the parents generally expressed more concern for their child's health and see it as a priority, hence do not take any risk even in case of minor illness.

The effect of drug during pregnancy and lactation is a major worry and the practise of self-medication without the proper knowledge lead to serious consequences including abortions, malformations etc. The biggest example include the phocomalia in children of mothers who consumed thalidomide during the 1960s [13]. Many of the pregnant women has a wrong perception that only the orally taken drugs has an effect on their baby and to use it under a physician's advice. During the interaction with the mothers it has been observed that they consider the topical preparations to be safe and they lack the knowledge that these drugs can also have the systemic availability. A Cochrane review analysed five cohort studies and nine case control studies and concluded that regardless of the potency topical corticosteroids are safe in pregnancy but is associated with low birth weights especially when the cumulative dose is high [14].

The whole survey report point towards the fact that people are generally unaware about the various aspects of drug including its indication and side effects, even then 67% of the people were sufficiently confident in self-medicating.

## CONCLUSION

Our study showed that self-medication was a common practise among the population and the commonly used medicines were analgesics, cold and cough relievers. Self-medication with antibiotics were also reported. Though self-medication was a prominent practise, people were well aware about its implications in pregnancy and lactation. There was no statistically significant difference in self-medication pattern between different age groups but significant between males and females among which females showed more practise of self-medication.

It would be safe if the people who are using the medications are aware about the various aspects of medicines. As a major part of the healthcare system, duties of the pharmacist have been changing over the past decade, with increasing self-medication worldwide. Pharmacist plays a valuable role in identifying, solving, and preventing drug related problems and thus improving patient outcome and quality of life as he can act



as an efficient communicator by directly interacting with the patients and asking key questions to know their understanding and pass on relevant information to him or her. Pharmacists are uniquely trained to assist the patient and hence should educate them regarding the safe use of medicines, help or direct them in the selection of appropriate drug therapy and should make them aware about the circumstances under which a physician should be consulted before patients embark upon independent self-care.

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