

## Survey On Self-Medication Of Antibiotics Among The People Of Dharmapuri District, Tamilnadu

<sup>1</sup>Dr. K.L. Senthil Kumar, <sup>2</sup> Dr . P.D. Gokulan,, <sup>3</sup> A. Vasanthan, <sup>4</sup> M. Anandhi,  
<sup>4</sup> S. Sneka, <sup>4</sup> V. Anbarasan, <sup>4</sup> R. Arunprasath.

<sup>1</sup>Principal, Sri Vijay Vidyalaya College of Pharmacy, Dharmapuri, Tamil Nadu, India.

<sup>2</sup>Professor&Head, Department of Pharmaceutical Chemistry, Sri Vijay Vidyalaya College of Pharmacy, Dharmapuri, , Tamil Nadu, India.

<sup>3</sup>Professor &Head, Department of Pharmaceutics, Sri Vijay Vidyalaya College of Pharmacy, Dharmapuri, Tamil Nadu, India.

<sup>4</sup>B.Pharm final year students, Sri Vijay Vidyalaya College of Pharmacy, Dharmapuri, Tamil Nadu, India.

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### ABSTRACT

#### Background:

Self-medication is the administration of medications without a medical prescription to manage self-medication diagnosed health problems or symptoms. Self-medication with antibiotics becomes a public health concern in both developed and developing countries. Antibiotic self-medication is common in low- and middle- income countries. The aim of this study was to evaluate the prevalence of self-medication of antibiotics among the people of Dharmapuri district, Tamilnadu. A self-administered questionnaire was used to collect data from the participants. This was an observational cross- sectional study involving a total of 200 people from the public population in Dharmapuri district, Tamilnadu. This study investigated the period prevalence, patterns of use, attitude statements and socio-demographic factors associated with self-medication with antibiotics in Dharmapuri district. As a recommendation regulatory control should be implemented to prevent dispensing antibiotics without a medical prescription.

#### Methods:

This cross-sectional study included face-face interviewing of 200 peoples randomly selected from the population of Dharmapuri district, Tamilnadu. A self-administered questionnaire was distributed to 200 individuals living population.

#### Results:

A response from 200 peoples were obtained. Knowledge about self-medication of antibiotics was moderate (67.5%), followed by poor knowledge (20%) and sufficient knowledge (12.5%). Fever (31.5%), cough (28.5%), runny nose (18.5%), sore throat (11.5%), aches & pain

(10%) were the most typical symptoms for which antibiotics were taken. One-third of peoples selected antibiotics based on the advice of drugstore's sellers.

**Conclusion:** This study is the first population-based study of self-medication with antibiotics among the people of Dharmapuri district. Usage of non-prescribed antibiotics as well as intent of doing so is common across socio-demographic categories.

**Key words:** Antibiotics; Self- medication; public; prevalence; survey; Dharmapuri

### I. INTRODUCTION

Antibiotics is medicine used to treat and manage infections caused by bacteria or any other microorganisms. It acts either by killing the organisms or inhibiting its growth. Self-medication with antibiotics or the use of non-prescribed antibiotics including leftover antibiotics is common in both developed and developing countries.

Self-medication is defined as “the use of drugs to treat self-diagnosed disorders or symptoms without prescriptions or continuation for the previously prescribed drug used for chronic or recurrent disease or symptoms or sharing family or friend or using the leftover drug stored at home”.

In many countries, self-medication with antibiotics has been reported high among youths. They may know certain antibiotics and how these antibiotics can be used in certain disease. Most of them cannot know the correct dosage, correct course, and side effects of antibiotics' improper use. Research evidence shows that self-medication with antibiotics is a leading cause of antibiotic resistance. Resistance to commonly prescribed antibiotics is remarkably high in the community of developing countries.

Despite self-medication with antibiotics being a global concern, determine such knowledge of antibiotic use and attitudes towards self-medication have not been well-examined in low- and middle- income countries (LMICs). The prevalence of antibiotic use and self-medication patterns in LMICs varies between different communities, and may be based on their social determinants of health.

World Health Organization (WHO) estimated that approximately 7,00,000 annual global deaths attributed to antimicrobial-resistant infection. It was projected to be 10 million deaths by 2050 unless further action was taken for this crisis (WHO,2019). The prevalence of self-medication has sharply increased in developing countries. Nearby drugstores and leftover drugs were the leading sources for SMA. Drugstore owners, friends, family, and relatives commonly suggested self-medicated antibiotics. Use of antibiotics can vary according to their availability, individual patient characteristics, existing laws, socio-economic factors, cultural factors, convenience; location etc.

Antibiotics are prescription only medicine most antibiotics are still available at pharmaceutical stores over the counter. People can buy antibiotics at pharmaceutical stores without being prescribed by doctors. Health care cost is an essential factor for their self-medication practice. People generally perceived the staff from drugstores.

Here we report on a study that is focused to identify the factors contributing to SMA and to assess the knowledge, attitude and practice of SMA in the local population which plays a major role in the inappropriate and ineffective use of antibiotics.

Therefore, this study aimed to describe the self-medication with antibiotics among the general population in Dharmapuri district, TamilNadu. This study will provide baseline data for policymakers to reduce the inappropriate use for antibiotics in Dharmapuri district.

## II. MATERIALS AND METHODS

### Study design and study setting

The study used a cross-sectional survey design carried out between 1<sup>st</sup> October to 30th november 2022 in Dharmapuri district, Tamil Nadu. A self-administered questionnaire was distributed to 200 individuals living in Dharmapuri district. The primary objective of this study was to investigate the prevalence of self-medication among the public population living in Dharmapuri district.

### Data collection and survey instrument

Data were collected using a pre-validated semi-structured self-administered questionnaire that was adopted from the literature, modified to match with the current study's objectives and population. We obtained written informed consent from the participants before the face-to-face interviews.

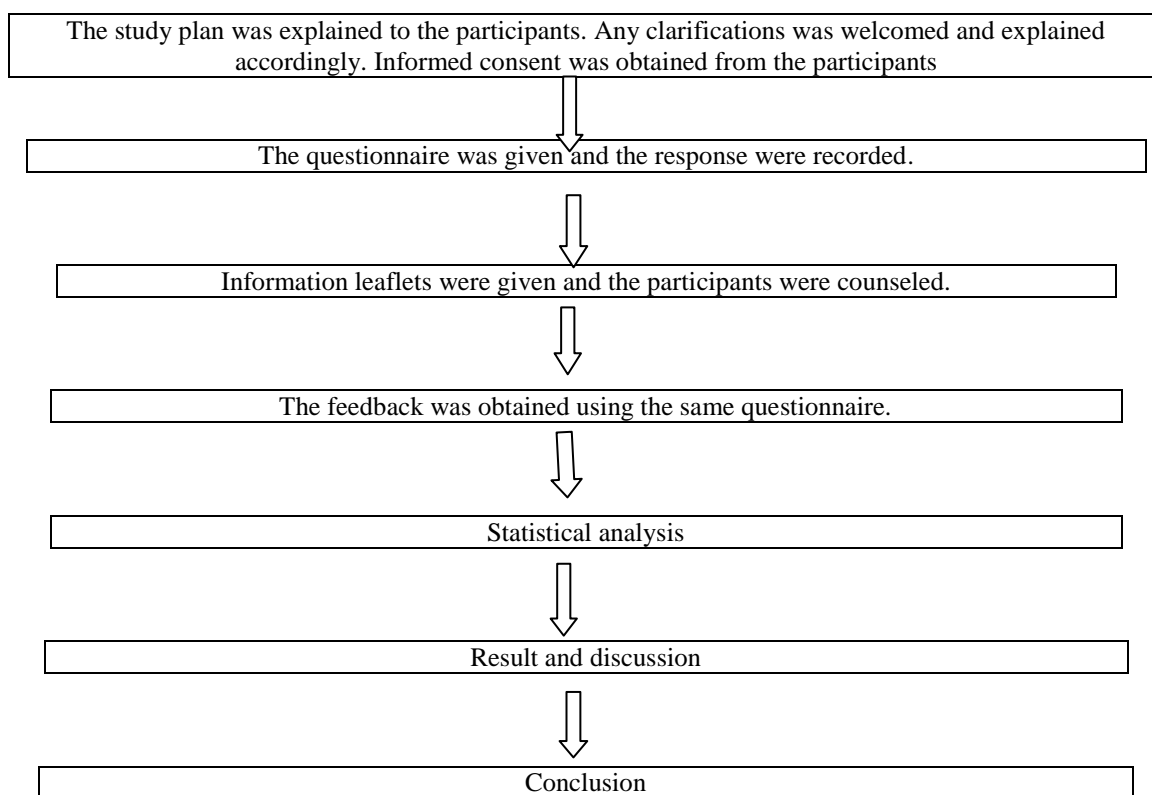
### Measures

The questions and statements in the survey were arranged into 6 sections: 1) respondents' self-reported past antibiotic use and self-medication, 2) antibiotic request from pharmacies without prescriptions for common infections, 3) socio-demographic characteristics, 4) knowledge about antibiotics, 5) attitudes towards antibiotic use, 6) experience driven beliefs on usefulness of antibiotics for common infections.

## III. METHODOLOGY

### Statistical analysis

Only fully completed questionnaires were included in the analysis. The knowledge and attitude statements were scored accordingly for each subject and categorized in 2/3 different categories. Attitude statement were scored and scaled as a) 0-4 (poor attitude) b) 5-8 (good attitude), knowledge was scaled from a) 0-4 (poor knowledge) b) 5-8 (moderate knowledge) c) 9-12 (good knowledge).



#### IV. RESULT AND DISCUSSION

The total sample collected was 200 people. Table 1 Respondents Socio-demographic characteristics are summarized in table:1. Most respondents were females(55%), and few males contributing to (45%). Most of the respondents are under the age group of 19-45years (42.5%), and

moderate respondents are above 46years(35%) and less respondents are under the age of 18years (22.5%). The respondents are categorized according to occupation were as employed (46.5%)and unemployed (53.5%). Also based upon the family member not as a health worker (78.5%) and as a health worker (21.5%).

**Table 1: Socio-demographic characteristics of respondents (n= 200)**

Variables	Number of respondents	Percentage of respondents
<b>Gender</b>		
Male	90	45%
Female	110	55%
<b>Total</b>	<b>200</b>	<b>100%</b>
<b>Age</b>		
Below 18 years	45	22.5%

19- 45 years	85	42.5%
Above 46 years	70	35%
<b>Total</b>	<b>200</b>	<b>100%</b>
<b>Occupation</b>		
Employed	93	46.5%
Unemployed	107	53.5%
<b>Total</b>	<b>200</b>	<b>100%</b>
<b>Family member as a health worker</b>		
No	157	78.5%
Yes	43	21.5%
<b>Total</b>	<b>200</b>	<b>100%</b>

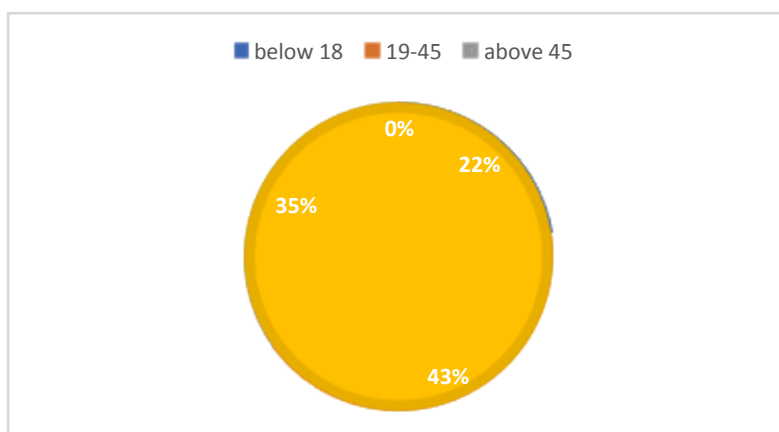


Figure1: Pie chart related to age category

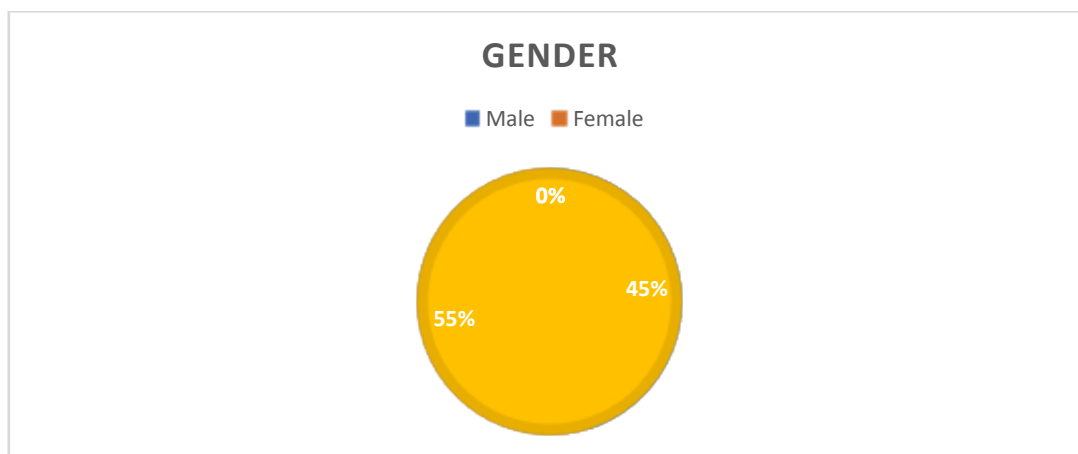


Figure 2: category based on the gender

In table 2, the prevalence of SMA was (44%), not prevalence of SMA was (56%). In this study, symptoms and complaints are analysed fever (31.5%) cough (28.5%) runny nose (18.5%) sore

throat (11.5%) aches & pain (10%). Moreover, the consideration of SMA, 61.5% purchased antibiotics as separated capsules/tablets and 26.5% purchased whole packets of antibiotics and 12% are others.

**Table 2: prevalence of SMA and the factors related to SMA (N=200)**

Prevalence of SMA	Number of respondents	Percentage of respondents
Yes	88	44%
No	112	56%
<b>Total</b>	<b>200</b>	<b>100%</b>
Symptoms /complaints of SMA	Number of respondents	Percentage of respondents
Fever	63	31.5%
cough	57	28.5%
Runny nose	37	18.5%
Sore throat	23	11.5%
Aches & pain	20	10%
<b>Total</b>	<b>200</b>	<b>100%</b>
Consideration of SMA	Number of respondents	Percentage of respondents
Whole packets	53	26.5%
Separated capsules/tablets	123	61.5%
Others	24	12%
<b>Total</b>	<b>200</b>	<b>100%</b>

In table 3, the various reasons for SMA were categorized.

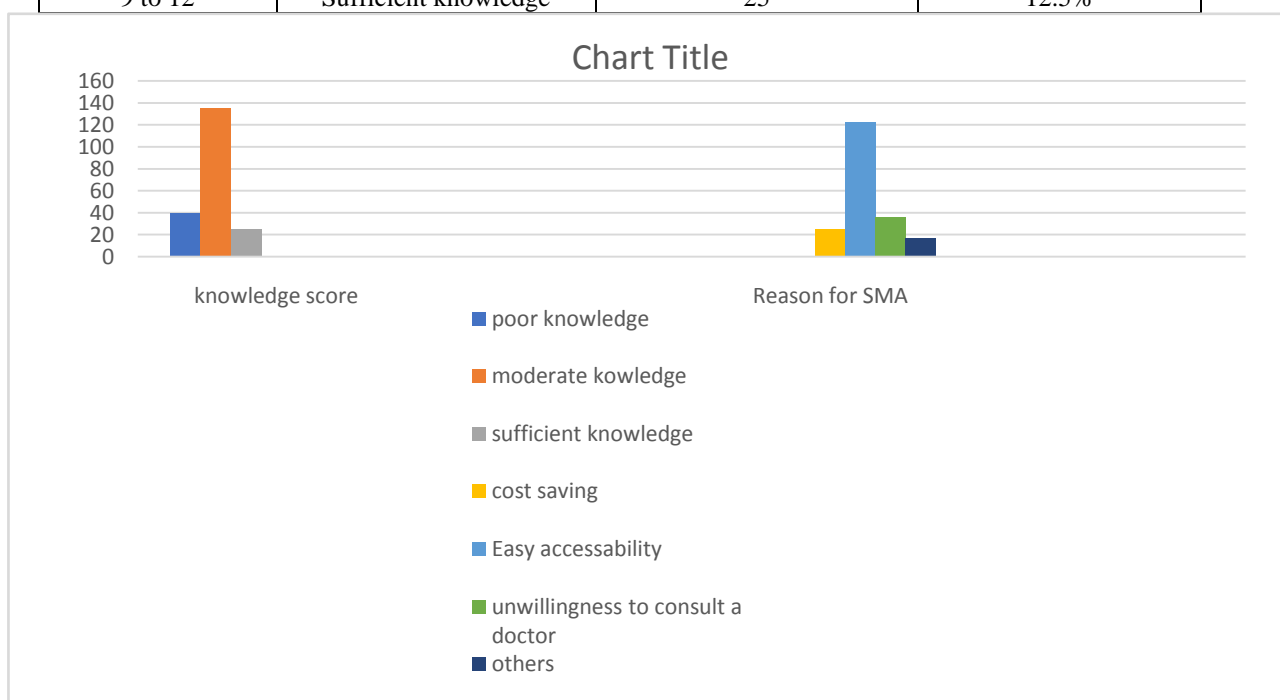
**Table 3: Reason for SMA**

Reason for SMA	Number of respondents	Percentage of respondents
Cost saving	25	12.5%
Easy accessibility	122	61%
Unwillingness to consult a doctor	36	18%
Others	17	8.5%

In table 4, we categorize into various types based on knowledge score from 0 to 12, the respondents were categorized as sufficient, moderate and poor knowledge. Most of the people had moderate knowledge (67.5), followed by poor knowledge (20%) and remaining with sufficient knowledge (12.5).

**Table 4: Knowledge categories**

Knowledge score	Category	No. of respondents	Percentage of respondents
0 to 4	Poor knowledge	40	20%
5 to 8	Moderate knowledge	135	67.5%
9 to 12	Sufficient knowledge	25	12.5%



**Figure 3: Knowledge score and reason for SMA**

**Table 5: Attitude statement**

S. No	Attitude statement	Appropriate response (%)	Inappropriate response (%)
1.	I always complete the course of treatment with antibiotics even if feel better	46	54
2.	If I feel better after few days, I sometimes stop taking antibiotics before completing the course of treatment.	58	42
3.	I prefer to keep antibiotics at home in case there may be a need for them later.	36	64
4.	It is good to be able to get antibiotics from relative/ friends without having to see your medical doctor.	38	62
5.	I prefer to use antibiotics if I have a cough for more than a week.	55	45
6.	I prefer to buy antibiotics from the pharmacy without prescription.	68	32
7.	What do you think about self-medication		

	with antibiotics for self – healthcare.	72	28
8.	I can treat common infectious disease with antibiotics successfully by myself.	79	21

## V. DISCUSSION

This study highlighted the proportion of SMA among people and factors the factors related to SMA among peoples in Dharmapuri district. This may be due to the easy availability of non-prescribed antibiotics at nearby drugstores in Dharmapuri district, while antibiotics are strictly regarded a prescription-only medicine in developed countries. The careless use of those antibiotics leads to antibiotic resistance. Moreover, the most typical symptoms for antibiotics usage such as the runny nose, cough, fever, headache, and injuries were similar to the China study report where sore throat, cough, runny nose, and nasal congestion as the common complaints of people for taking antibiotics.

The majority had obtained their last antibiotic supply with a physician’s prescription and where it had, in most cases, been prescribed for the common cold, cough and sore throat. These are all minor ailment most likely caused by viruses indicating that inappropriate prescribing may exist.

Moreover, knowledge about antibiotics was poor, however respondents with knowledge about appropriate use of antibiotics were more likely to self-medication with antibiotics. Positive attitudes towards having easy access to antibiotics from pharmacies was strongly associated with self-medication with antibiotics and experience of receiving antibiotics from physicians and pharmacies predicting antibiotic request from pharmacies without a prescription.

Further, studies have revealed that in countries where antibiotics are available without a prescription from pharmacies, there is a high level of misconception among the public about antibiotic use and resistance. It is evident from our study that the public had moderate knowledge about antibiotics, their effectiveness and use, and ABR, findings consistent with other studies.

This study revealed that those with more knowledge of appropriate use of antibiotics were more likely to self-medicate. This may be because those who have knowledge, believe that self-medication is appropriate. The study was based on a cross-sectional survey design, that is the data on self-medication practices. This study was also carried out in specific context, a population among the Dharmapuri district, Tamilnadu.

There are several limitations in this study. Similar to all self-administered public surveys, the accuracy of the results was heavily dependent on the honesty and understanding of the respondents. Selection bias might occur due to convenience sampling. As the study was conducted in a local community setting, the findings may not be generalized to the whole country or region.

## VI. CONCLUSION

The term self-medication with antibiotics refers to the use of antibiotics without prescription from an authorized physician. This study identified the knowledge and attitude gaps in the public about the attitude of antibiotic use. To our best of knowledge, being the first study of SMA among people of Dharmapuri district, this finding could help further comprehensive research. This study revealed that the prevalence of SMA was high among Dharmapuri district. Self-medication with antibiotics is increasing day by day which may be the result of poor health facilities, higher cost, accessibility etc. Majority of the people tend to use antibiotics that has been prescribed to them previously or getting opinions from friends and family. Among the interventions developed towards limiting the use of antibiotics without prescription educational awareness and counselling can be considered to have a major effect. Awareness-raising and educational program targeting both drugstore owners and the public through various channels is necessary to reduce the inappropriate use of antibiotics. Pharmacist based approach to educate and rationalize antibiotic use and strictly stopping dispensing of antibiotics without a prescription from authorized physicians. Policy based approach by strict implementation of laws. Patient based approach by not stocking antibiotics for future use and completing the course of antibiotics.

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