

## Pharmacoepidemiological Study of Self-Medication in Indore City

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### Abstract

Self-medication and non-doctor prescribing of drugs is common in developing countries. The objectives of this research were to explore lay medication activities as an aspect of self-managed health care to identify sociomedical characteristics and to establish the prevalence, attitude knowledge, and sources of information of self-medication in Indore city. A cross-sectional study was conducted to determine the extent and pattern of self-medication. Data were collected from a random sample of 135 pharmacists from various pharmacies in city following WHO methods. The prevalence of self-medication was estimated. Respondents were questioned about the, self-treated symptomatic conditions, recent medication activities, the use of prescribed medicine in self-treated illness episodes, and the use of suitable dosage forms. The prevalence of self-medication in Indore city is high. This study contributes to a growing body of international evidence which has demonstrated that self-medication is a vital part of daily self-care behavior. Patient education and awareness campaigns are necessary to promote the role of the pharmacist in India, particularly because in modern society the pharmacist plays an active role in the provision of drug information. Strict policies need to be implemented on the advertising and selling of medications to prevent this problem from escalating.

**Key words:** Self-medication, Pharmacoepidemiology, Indore city

### INTRODUCTION

Pharmacoepidemiology is considered newly evolving science that studies the use and effects of drugs in large numbers of people.<sup>1</sup> Rational use of drugs has drawn public health attention globally with the aim of maintaining quality health care at lower cost.<sup>2</sup> As dispensing medication in an appropriate way is a cornerstone of rational drug use, the dispenser should be regularly updated with information, tools and skills.<sup>3</sup> Internationally, self-medication has been reported as being on the rise.<sup>4-6</sup> Various studies have shown that the use of self-medication is twice as common as that of prescribed medication<sup>7-10</sup>, and that self-medication is often used together with prescribed medication. Self-medication is defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment.<sup>11</sup> This includes acquiring medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home.<sup>12</sup> There is much public and professional concern about the

irrational use of drugs.<sup>12</sup> The prevalence rates are high all over the world; up to 68% in European countries<sup>13</sup> and 57% in USA,<sup>14</sup> while much higher in the developing countries<sup>15</sup> with rates going as high as 92% in the adolescents of Kuwait.<sup>16</sup> The prevalence rates of self-medication and self care are 31% in India,<sup>17</sup> 59% in Nepal<sup>14</sup> and 51% in Pakistan.<sup>18</sup>

It is also alarming that the prevalence rates are on the rise despite efforts to limit this problem.<sup>19</sup> Various previous studies have shown that self-medication practices are more common in women and in those; who live alone, have a lower socioeconomic status, have more chronic ailments, have psychiatric conditions, are of younger age and in students.<sup>15, 20, 21</sup> The World Health Organization has emphasized that self medication must be correctly taught and controlled.<sup>4</sup> Suspected rates of self-medication can be due to various reasons. One reason for this may be related to the availability of a wide range of non-prescription medication that can be obtained from community pharmacies without a doctor's prescription, with the notable exception of antibiotics, narcotic analgesics, steroids and major tranquillizers. Another reason could be the influence of peers and parents.

A number of studies have reported that self-medication starts with the onset of adolescence and increases with age.<sup>22, 23</sup> The public health importance of self-medication has increased since the late 1980s when more drugs were changed from prescription status to be sold over-the-counter (OTC) without a prescription. This is a worldwide trend. The increased possibilities of self-medication have implications for patients, pharmacists, and physicians.<sup>24</sup> It also allows pharmaceutical companies to expand their market.<sup>25</sup>

In India, pharmacists and pharmacy attendants play an important role in fostering self-medication among the public.<sup>26</sup> Combination preparations containing 'hidden' classes of drugs and food supplements or tonics of doubtful value were commonly used in India.<sup>27</sup> The nature and extent of self-medication varies in different cultural contexts and social and educational influence may be greater than the influence of medical practice. In India, it is possible to buy prescribed and non-prescribed drugs with or without prescriptions from a wide variety of sources. These drugs, if not fully used, may be kept for future use by the parents. In order to have a better understanding of the use of self-medication among patients, a study was carried out. The aims of our study were to obtain baseline data on self and non-doctor prescribing in Indore city and to obtain pharmacoepidemiological information regarding self-medication and non-doctor prescribing.

#### METHODS

The study design and sample size followed World Health Organization guidelines for investigation of therapeutic practice.<sup>28</sup> Accordingly, a sample of 130 pharmacies was selected randomly from Indore city, using simple random sampling technique. Indore is prime city located in the western region of Madhya Pradesh, and is close to the centre of India with a population about 35 million. A self-administered questionnaire was distributed amongst the principal pharmacist of each pharmacy after explaining the purpose of the study and taking informed consent. The study questionnaire was adapted from various similar studies conducted previously<sup>15, 29, 30</sup> and pre tested on a sample of 10 participants. Any ambiguities in the questions or responses were removed before its implementation. The questionnaire was administered in english. The study consisted of a survey of the use of self-medication to ascertain:-

1. Prevalence of self-medication
2. Conditions treated by self-medication
3. Categories of medications preferred

4. Preferred dosage form during self-medication
5. Safety priority of using the drugs
6. Reasons for self medication

The prevalence of self-medication was determined as percentage of all users out of the total sample. The high prevalence of self-medication may mean that there is a high morbidity rate in the community, or that some people use medications unnecessarily. The reasons given for self-medication were analyzed.

#### RESULTS

All the visited pharmacists took part in the study. The conditions treated by self-medication are shown in Table-1. Conditions which were more likely to be treated by self-medication are fever, cough and cold, sex problems, infection, headache, eye problem, nutritional loss etc. Because of increasing trends of self-medication, people ask for the various medications. During the study surprising results were obtained that majority of drugs that comes under antipyretic, analgesic and anti-inflammatory, antihistaminic and anti-allergic categories are asked by patients and such drugs are dispensed by pharmacist without the proper prescription despite of the fact that these drugs requires a prescription of physician. Fifty two percent of the pharmacists believe that such medications need prescription while 48% do not. The various categories of drugs which are sold on non-prescription by pharmacists, if requested by patients are shown in Table-2. The preferred dosage form in case of prescription drug is a versatile dosage form that is tablet (98.46%). Liquid orals (55.38%) are the preferred choice after tablets. Preferred dosage forms for self-medication are shown in Table-3.

Some basic information revealed as an outcome of the study has been shown in Table-4. The number of customers coming for such medication varies from one location to another. When asked to the pharmacist, the average number of customers coming to the pharmacist shop for self-medication is about 18-26 per day. When asked about the role of advertisement on electronic media for self-medication, about 87% of pharmacists agrees the impact of advertisement, 12% says that 'Cannot say' and less than 1% believes that that there is no role of electronic media for promoting self medication. Safe use of drug should be of almost priority. But because of self-medication, these prescription drugs may cause toxicity or they may be misused. About 45% of pharmacists agree that the drugs are misused, 18% do not agree and where as 37% says 'Cannot say'. When opinion of the pharmacist

**Table.1: Symptoms, disease and disorders for which medicines are asked**

Sr. no	Parameters	Percentage
1	Fever	82.3
2	Cough and Cold	53.84
3	Sex problem	43.84
4	Infection	29.23
5	Headache	27.69
6	Diarrhea	22.3
7	Nutritional loss	9.23
8	Vomiting	8.46
9	Eye problem	6.92
10	Appetite loss	6.15
11	CNS depressants	3.84
12	Dental problem	1.53
13	Hypertension	1.53
14	Skin problem	0.76

**Table.2: Drugs dispensed by pharmacist on patient's request**

Sr. no	Parameters	Percentage
1	Antipyretic	85.38
2	Analgesic and anti-inflammatory	67.69
3	Cough and Cold Preparations	53.07
4	Sex stimulants	43.84
5	Antibiotics	40
6	Anti-allergic	26.15
7	Anti-diarrhea	23.84
8	Nutritional supplements	12.3
9	Ophthalmic preparations	8.46
10	Anti-emetic	8.20
11	Appetite stimulants	3.07
12	Dental preparations	1.53
13	Antihypertensive	1.53
14	Cosmetic preparations	0.79
15	CNS Depressants	0.76

**Table.3: Choice of dosage form**

Sr. no	Parameters	Percentage
1	Tablet	98.46
2	Liquid orals	55.38
3	Condom	38.46
4	Ointment	27.69
5	Capsule	21.53
6	Powders	14.61
7	Drops	7.69
8	Cream	3.07
9	Rotacap	0.78
10	Enema	0.71

**Table No.4: Some basic questions related to self-medication**

Sr. no	Questions	Answers	Percentage
1	What is the average number of customers coming to the pharmacist shop for self-medication in a day?	18-26	-
2	What is the impact of advertisement on electronic media for self-medication?	Increase	86.92
		Decrease	0.76
		Can not say	12.3
3	Do such medications need prescription?	Yes	52
		No	48
4	Are the drugs used for self-medication safe?	Yes	45.38
		No	17.69
		Can not say	36.92
5	Whether self-medication for prescription drug should be continued or not?	Yes	22
		No	78
6	What are the basic reasons for self-medication?	Poverty, lack of time, easy availability of drugs, minor ailments, previous treating experience, Non-availability of doctor.	-

was asked about continuation of use of prescription drugs for self-medication, majority, about 78% of pharmacists of opinion that since drugs are misused their use without prescription should be stopped, but about 22% of pharmacists are in favor of self-medication because in their opinion majority of poor people cant afford physicians fees and therefore this practice should be continued. The reasons given for self-medication were analyzed. Reasons for self-medication for prescription drugs include poverty, lack of time, easy availability of drugs, the illness was too mild and did not require the services of a doctor, previous experience of treating a similar illness and even if patients go to a doctor they will be prescribed similar medications. Non-availability of a doctor was also cited as a reason for self-medication.

**DISCUSSION**

We acknowledge that this type of study, using a self administered questionnaire, is largely dependent upon information given by respondents. In the present study the rate of self medication was high, due partly to the lack of enforcement of the Indian law concerning drug products requiring a prescription to be sold over the counter drugs. Due to the differing socioeconomic profiles and demographic characteristics of the populations, it was difficult to compare the results.

Antipyretics and analgesics were the most commonly used class of drugs, which is similar to findings in the literature.<sup>31, 32</sup> In developing countries, antimicrobials are commonly sold drugs. In concordance with previous results,<sup>33,34</sup> our results show that antimicrobials were used less than 50% for self-medication, and were mostly obtained on prescription. Factors influencing self-treatment include patient satisfaction with the healthcare provider, cost of the drugs, educational level, socioeconomic factors, age and gender.<sup>35</sup> In India, Deshpande and Tiwari reported that 26% of graduates and 23.1% of illiterate people practised self-medication.<sup>17</sup> Another study in India in an urban slum community indicated that the practice of self medication was more prevalent among literate people.<sup>36</sup> Probably this educated group has more ability to self-medicate. Education appeared to be an important variable as the higher the purchasers' educational level, the more the complied with reading the patient information sheet, following the label instructions and reading the expiry date. Deshpande and Tiwari's study in India found that 30.8% purchased a particular medicine on advice from friends or neighbors.<sup>17</sup> The commonest reason given for self medication was purchasers' belief that their complaint

was a minor problem, not requiring medical attention. Some of the purchasers claimed that they knew the treatment from a previous prescription while some had confidence in the pharmacist. The study indicated that purchasers attempt self-medication due to the triviality of their symptoms or to save time and money. In the slum community in India inability to pay for established medical facilities was the commonest motivation for self-medication.<sup>36</sup> Research has demonstrated that individuals have their own ideas and beliefs about drug use, which are important determinants of their use.<sup>37-39</sup> Although it is true that self-medication can help treat minor ailments that do not require medical consultation and hence reduce the pressure on medical services particularly in the underprivileged countries with limited health care resources.<sup>40</sup> Moreover, the practice of self medication often has many adverse effects and can lead to many problems, including the global emergence of Multi-Drug Resistant pathogens,<sup>41</sup> drug dependence and addiction,<sup>42</sup> masking of malignant and potentially fatal diseases,<sup>43</sup> hazard of misdiagnosis,<sup>44</sup> problems relating to over and under dosing,<sup>45</sup> drug interactions<sup>46</sup> and tragedies relating to the side effect profile of specific drugs.<sup>47</sup> In the ideal setting the only justifiable rationale for self medication would be 'urgency of the problem'.

We are of the opinion that if people knew exactly how devastating self medication could be instead of just knowing that it is wrong; the prevalence rates would be much lower. Medicines that are not over-the-counter drugs should not be given without prescription and a strict system of checks and balances should be implemented to prevent this problem from escalating. A very small percentage of pharmacists actually give the appropriate medication when consulted.<sup>48</sup> It has also been shown by recent studies that familiarity and easy access to certain pharmaceuticals are determinants for self-medication.<sup>12</sup> This brings us to the issue of advertising of medicines by pharmaceutical companies. Although it was not researched in this study, previous research has demonstrated that advertising directly affects the youths decision to self-medicate.<sup>49</sup> Thus further research and strict rules and regulations also need to be placed in this regard. Due to the difficulty in accessing health care services, self-medication is often the simplest option for the patient. Since traditional practitioners are easily accessible, people also turn to them for their healthcare needs. However, traditional practitioners need to be educated about when to refer a patient for more

specialized care. They can also help to introduce modern concepts such as immunization among the rural population. Educational intervention to help patients decide on the appropriateness of self-medication may be helpful.

Pharmacists and to a less extent pharmacist assistants were a source of advice to purchasers in the present study. Pharmacists diagnosed certain conditions and prescribed a drug as a treatment. Purchasers also sought medication on their own initiative. In India, the pharmacist's role is mainly seen as that of a drug salesman rather than that of a health care provider. Patient education and awareness campaigns are necessary to promote the role of the pharmacist in India, particularly because in modern society the pharmacist plays an active role in the provision of drug information. In view of the wide spectrum of drugs available over the counter, it is vital that pharmacists in India assume this role after appropriate training and with continuing professional development programmes.

#### **CONCLUSION**

The prevalence of self medication practices is alarmingly high in Indore city. Fever and cough and cold were the most common reasons for non-doctor prescription. NSAIDs were the drugs most commonly used for self-medication and tonics were more frequently taken without prescription. People also emphasize to choose a suitable dosage form as per convenience. Tablets and liquid orals were mostly preferred. Few people consult pharmacists on drug information. This issue needs to be addressed by the responsible authorities in India. We recommend that a holistic approach must be taken to prevent this problem from escalating which would involve (i) awareness and education regarding the implications of self medication (ii) strategies to prevent the supply of medicines without prescription by pharmacies (iii) strict rules regarding pharmaceutical advertising and (iv) strategies to make receiving health care much less difficult. The need for promoting the appropriate use of drugs in the Indian health care system is important. It is recommended that the dispensing procedure in India needs improvement through educational, regulatory and managerial strategies. There is need for authorities to be proactive regarding over the counter, prescribed and non-prescribed drugs so as to ensure rational sale. Periodic studies on the knowledge, attitude and practice of self medication may give an insight into the changing pattern of drug use in the Indian societies and it is also hoped that this study will stimulate



more attention to, and research into, self-medication — an important but controversial medical issue.

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