

COMPARISON OF SELF MEDICATION USE IN SOME URBAN AND RURAL  
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## ABSTRACT

**Background and objective:** This study was conducted to compare the self medication pattern in urban and rural areas of Pune. **Method:** Data was collected with the help of semi-structured questionnaire from persons who were buying drugs without prescription from medical shops. Information about self medications, diagnosis for use of self medications, source of information of self medications, adverse effects to self medicated was collected. **Results:** NSAIDs, GIT, cosmetic and herbal drugs are self medicated more in urban areas whereas NSAIDs and antibiotics are self medicated more in rural areas. 39% urban and 29% rural analgesics self medication was associated with ADRs. 29.41% antibiotics self medication leads to ADRs in rural areas. Doctors and chemists are two major sources of information for self medications in rural areas, whereas advertisement is third information source in urban areas. **Conclusions:** NSAIDs, GIT, drugs for skin ailments and herbal drugs are commonly self medicated in urban population. The self medication of antibiotics in rural areas is disturbing, as these are liable for drug resistance and ADRs. Hence should be taken under supervision only. Pharmacists should provide information about adverse effects of NSAIDs and antibiotics. Legal steps should be taken for providing information of ADRs to self medicated drugs. Regulation of advertisements may also help in curbing the self medication in urban areas.

**KEYWORDS:** Self medication, urban and rural self medication, NSAIDs self medication, Antimicrobials self medication.

## INTRODUCTION

Self-medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment.<sup>[1]</sup> Self medication or non prescription drug use is common in developing countries.<sup>[2,3]</sup> It has been observed that people use either prescription or non prescription drugs for self medication. Persons self medicate themselves by taking more or less than the recommended dose or frequency of drug administration and duration of therapy of drugs.

Taking self medication without doctor's supervision can be dangerous as it may lead to dangerous drug interactions and adverse effects. Various previous studies concluded that self medication of non steroidal anti-inflammatory drugs (NSAIDs) being predominantly common.<sup>[2,3,4]</sup> In previous studies, ADRs were reported to the self medications.<sup>[3,5,6,7,8]</sup>

Increasing cost of treatment and poor socio-economic status may increase use of self medication.<sup>[2,3]</sup> Studies on self-medication patterns and prevalence of non-doctor prescribing in India are very few in India. Hence, we

undertook this study, to explore self medication pattern of other drugs including NSAIDs in urban and rural areas of Pune, Maharashtra, India with following aims and objectives.

## AIMS AND OBJECTIVES

1. To find out common self medications either single drug or fixed dose combinations (FDCs) used in urban & rural areas of Pune.
2. To find out the common self medications which cause ADRs.
3. To know the common health related problems for self medication use in urban & rural areas of Pune.
4. To find out association of demographic factors for self medication use in urban & rural areas of Pune.
5. To assess the rationality of FDCs self medication as per World Health Organization (WHO) Model list of Essential Drugs.

## MATERIALS AND METHODS

*Study site*

Data collected by surveying the population who were taking self medication from medical shops located in

rural areas like Dhayari and Narhe and urban areas like Kothrud, Pune station and Pimpri-Chinchwad areas.

### Study design and sampling

It was a cross sectional observational study. A survey was carried out in medical shops located in rural and urban areas of Pune.

### Study tools

**Data collection:** Semi-structured questionnaire prepared by Department of Pharmacology was used for data collection.

### Information obtained

- Name of self medication, duration, dose, frequency of drug administration.
- Symptoms for which drugs were used.
- Source of information for self medication: doctor, chemist, neighbour, advertisement on TV/ Newspaper or any other source.
- Adverse effects to self medication

**Rationality:** Rationality of the FDCs self medication was assessed according to WHO Model List of Essential Drugs, 17th Edition, 2011.<sup>[9]</sup>

### Statistical analysis

As there is absence of substantial data for self medications, we had taken approximately 300 self medications as sample size in each group – urban / rural. For 280 self medications from rural and 258 self medications from urban areas for which we had complete

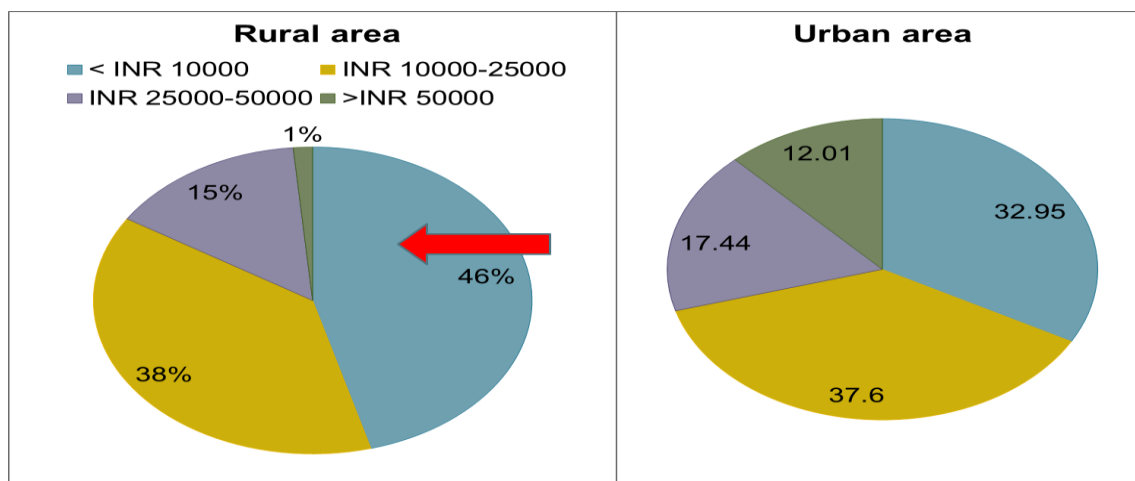
information. Comparison was done between the different drug groups of self medication.

### RESULTS

Distribution of self medication was similar in males and females.(Table 1). 46 % of self medication was observed in lower socio-economic status i.e.monthly income less than INR 10000 in rural areas and in urban areas income distribution of self-medication was not showing such relation. (Figure1) Drugs for respiratory problems, analgesics, cardiovascular, CNS acting drugs, drugs for diabetes, vitamins, minerals, antibiotics and gastrointestinal ailment drugs were commonly self medicated both the groups. Herbal drugs and drugs for skin disorders were self medicated in urban areas. (Table 2) Total 59 ADRs in rural areas and 60 ADRs in urban areas were reported in this study. Among the ADRs, least number of ADRs were reported to paracetamol .62.5 % ciprofloxacin self medication associated with ADRs like hyperacidity, headache and confusion. Previous doctor's prescription and chemists and advertisement was the main sources of information for self medication in urban areas, Initial doctor's prescription was main source of information for self medication in rural areas.(figure 2) Pain signs/ symptoms, hyperacidity, infections mainly wound infection and fungal infection were common for self medication use in both areas. Skin problems like acne and hair fall lead to self medication use in urban areas. (Table 3) Among the analgesic self medication 55% ADRs experienced by study participants were due to analgesics fixed dose combination. Antimicrobials were commonly self medicated in both the areas.(Table 4).

**Table 1: Demographic characteristics of self medication in rural and urban area.**

| S.No.                          | Rural No / (%) | Urban No / (%) |
|--------------------------------|----------------|----------------|
| <b>Total self-medications</b>  | 280            | 258            |
| <b>Sex : Male</b>              | 145 (51.79)    | 133 (51.55)    |
| <b>Female</b>                  | 135 (48.21)    | 125 (48.45)    |
| <b>Single drug</b>             | 147 (52.50)    | 142 (55.04)    |
| <b>Fixed dose combinations</b> | 133 (45.50)    | 116 (44.96)    |
| <b>Rational Combinations</b>   | 31 (23.31)     | 17 (14.66)     |



**Figure 1: Association of Socio-economic status with self medication in rural and urban areas.**

**Table 2: Self medication drug groups with ADRs.**

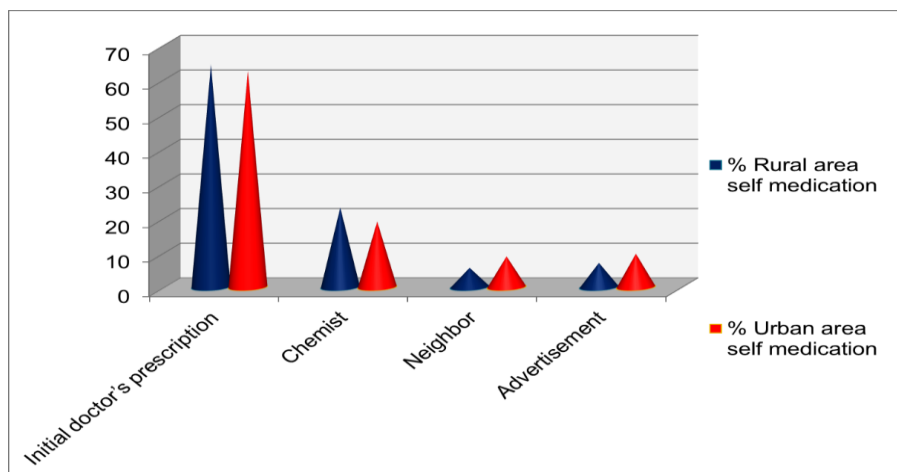
| S.No. | Name of the drug Group  | Rural                     |                        | Urban                     |                        |
|-------|-------------------------|---------------------------|------------------------|---------------------------|------------------------|
|       |                         | Self medications No./ (%) | ADRs reported No./ (%) | Self medications No./ (%) | ADRs reported No./ (%) |
| 1     | RS                      | 23 (8.21)                 | 7 (30.43)              | 22 (8.53)                 | 3 (13.64)              |
| 2     | Analgesics              | 89 (31.79)                | 20 (22.47)             | 74 (28.68)                | 20 (27.03)             |
| 3     | CVS, CNS, Diabetes      | 32(11.43)                 | 7 (21.88)              | 26 (10.08)                | 16 (61.54)             |
| 4     | Vitamins, Minerals      | 41 (14.64)                | 3 (7.32)               | 28 (10.85)                | 2 (7.14)               |
| 5     | Antibiotics             | 27 (9.64)                 | 16 (59.26)             | 34 (13.18)                | 10 (29.41)             |
| 6     | GIT ailment drugs       | 46 (16.43)                | 1(2.17)                | 37 (14.34)                | 2 (5.41)               |
| 7     | Herbal drugs            | 1 (0.35)                  | 0                      | 15 (5.81)                 | 0                      |
| 8     | Drugs for Skin Problems | 0                         | 0                      | 11(4.26)                  | 1 (9.09)               |
| 9     | Others                  | 21 (7.50)                 | 5 (23.81)              | 11 (4.26)                 | 6 (5.45)               |
|       | Total                   | 280                       | 59 (21.07)             | 258                       | 60 (23.26)             |

**Table 3: Health related problems responsible for taking self medication**

| S.No. | Health related problems  | Rural No. / (%)        | Urban No. / (%)         |
|-------|--|------------------------|-------------------------|
| 1     | Pain symptoms/signs:<br>Fever, myalgia, swelling, fracture pain, pain in abdomen, joint pain, neck pain, headache, dysmenorrhoea, osteoarthritis | 93 (33.33)             | 74 (28.68)              |
| 2     | GIT ailment<br>Diarrhea, constipation, pain in abdomen<br>Hyperacidity   | 18 (6.57)<br>25 (7.04) | 19 (7.36)<br>26 (10.08) |
| 3     | Infections :<br>wound infection, ear infection, cellulites, urinary tract infection, fungal infections   | 25 (8.93)              | 13 (5.04)               |
| 4     | Symptoms related to respiratory problems:<br>Common cold, throat pain, allergic rhinitis, cough  | 23 (8.21)              | 22 (8.53)               |
| 5     | Diabetes   | 11 (4.22)              | 12 (4.65)               |
| 6     | Hypertension   | 11 (3.76)              | 13 (5.04)               |
| 7     | Prophylactic use<br>Pregnancy, osteoarthritis, anemia  | 38 (14.08)             | 31 (12.02)              |
| 8     | Skin Problems<br>Acne, cracks, hair fall, dandruff   | 1 (0.35)               | 11 (4.26)               |

**Table 4: Comparison of analgesics and antimicrobial FDCs as self medication in rural and urban areas.**

| Parameters                                    | Analgesics |            | Antimicrobials |           |
|---|------------|------------|----------------|-----------|
|   | Rural      | Urban      | Rural          | Urban     |
| FDCs self medication – No                     | 29         | 28         | 8              | 7         |
| ADRs reported to FDCs self medication -No (%) | 11 (37.93) | 12 (42.86) | 4 (50)         | 3 (42.86) |



**Figure 2: Sources of information of self medications.**

## DISCUSSION

### *Association of demographic factors for self medication use in urban & rural areas of Pune*

About 50 % of self medication was observed in lower socio-economic status i.e. monthly income less than Indian rupees (INR) 10000 in rural areas and less than INR 25000 in urban areas. In developing countries like India, the poor socio-economic status, high cost of modern medicine and non availability of doctors in rural areas create problem for access for the healthcare services and may lead to increased self medication use.<sup>[2]</sup>

### *Common health related problems leading to self medication use in urban & rural areas of Pune*

Pain signs/ symptoms, hyperacidity, infections mainly wound infection and fungal infection were common for self medication use in both areas. Skin problems like acne and hairfall lead to self medication use in urban areas. Similar finding were observed in previous studies.<sup>[5,6,10]</sup>

### *Self Medication of FDCs*

45.50 % of self medications in this study were fixed dose combinations (FDCs) and only 23.31 % of these were rational according WHO Model List for Essential Drugs 2017.<sup>[9]</sup> FDCs self medication were taken largely from initial doctor's prescriptions, indicating irrational drug prescribing and availability of various irrational FDCs in drug stores in India. Current Index of Medical Specialities (CIMS)<sup>[11]</sup> and DRUG TODAY<sup>[12]</sup> which are the prominent indices of marketed drugs have listed various irrational FDC preparations in the class of analgesics, antibiotics, vitamins and minerals, Gastro-intestinal (GIT) ailment drugs and respiratory tract drugs that are available in the Indian market.<sup>[11,12]</sup>

### *Analgesic Self Medications*

Analgesic fixed dose combinations counts for 55 % ADRs of analgesics self medication. All analgesics FDCs that were self medicated in this study were irrational according to WHO Model List for Essential Drugs.<sup>[9]</sup> In previous studies ADRs reported to analgesics in the range from 22% to 27%.<sup>5,6</sup> In study of analgesics self medication in Pune, 39% ADRs were reported to paracetamol.<sup>[8]</sup>

### *Antimicrobials Self Medication*

Antimicrobials are commonly self medicated in rural and urban areas. It was also seen that self medication of antibiotics was taken for less duration of time (average time in this study was less than 3 days.) and in inappropriate doses. It was noted previously that self medication of antibiotics is associated with high resistance level.<sup>[14]</sup> It was observed in previous study that 85% shopkeepers did not provide information about ADRs to antimicrobials due to lack of time.<sup>[4]</sup> In this study, 60% ADRs in rural areas and 30% ADRs in urban areas were found with antimicrobials self medication. We can curb self medication practice of antibiotics if it is given only on advice of prescriber, trained pharmacists

and also by educating general population about self medication of antibiotics and making them aware about antibiotic resistance.<sup>[14]</sup>

### *Vitamins / minerals Self Medication*

Vitamins/ minerals fixed dose combination easily available for self medication, should not be taken unnecessarily. Self medication of vitamins/minerals only add to the expenditure bill of the patient without giving any potential benefit.<sup>[15]</sup> Misconception in the community about power booster property of vitamins need to be removed. Regulation of advertisement are needed for preventing unnecessary use of vitamins/minerals as self medication. WHO Model List for Essential Drugs includes ascorbic acid, calcium, ferrous salts, folic acid, nicotinamide, pyridoxine, retinol, riboflavin, and thiamine like vitamins and minerals as single drug formulation. The only fixed dose combination that has got place in WHO Essential Medicine List in vitamin/mineral category is of ferrous salt and folic acid.<sup>[9]</sup>

### *Role of pharmacists in self medication practices*

Pharmacists can play key role by providing the patients information of warning symptoms needing urgent medical aids and about the adverse effects.<sup>[15,16]</sup>

### *Sources of information for self medication*

A part from previous doctor's prescription and chemists, in urban areas, advertisement is another source of information for self-medications. Doctors are not available in time in rural areas<sup>[2]</sup>, this might have tempted the rural population to use initial doctor's prescription for self medication.

## CONCLUSIONS

Easy availability of drugs from pharmacist, decreased cost of therapy by using self medication are major factors for increased use of self medication. NSAIDs and drugs for gastro-intestinal ailments are commonly self medicated in rural as well as urban areas irrespective of socio-economic status. Drugs for cosmetic purpose and herbal drugs are commonly self medicated in urban population. The self medication of antibiotics in rural areas is disturbing, as these are liable for drug resistance and ADRs and hence should be taken under supervision only. Pharmacists should provide information about adverse effects of NSAIDs and antibiotics. Legal steps should be taken for providing information of ADRs to self-medicated drugs. Strict Food and Drug Administration (FDA) regulations for dispensing of certain drugs like antibiotics without prescription of registered medical practitioner may help in decreasing hazards of self-medications. FDA should not permit manufacturing new FDCs which are outside of Essential Drug List. Regulation of advertisements may also help in curbing the self-medication in urban areas.

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