
Pattern of Drug-Use in an Indian Urban Area: A Questionnaire Survey

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A questionnaire survey was carried out among 196 responders (drug-salesmen working in authorized drug stores) to investigate the pattern of drug-use in an Indian urban community considered as representative sample. Study revealed that, 30.6% buyers could show the prescription from a qualified doctor or a dentist. Fifteen-percent prescriptions came from dentists. Sixty nine percent respondents answered that a number of buyers insisted them to advice a drug for their illness. Ayurvedic physicians were prescribing allopathic drugs, as reported by 53.3% responders. Qualified physicians were prescribing herbal drugs, 17.8% responders. Antibiotics were the highest sold 55% followed by tonics 30%, antacids 10% and other drugs 5%. Only 14 responders (7.1%) heard about Essential Drugs and two persons (1%) knew the generic name of a few drugs. Prescriptions are not easy readable was reported by 75% responders. The prices of drugs are increasing was answered by 196 responders (100%). The outcome perhaps represents the situation elsewhere in India.

Pattern of drug-use is an important determinant that can provide some idea of the situation of health care of a country¹. Regulations on implementation of rational use of drugs, type of prescription from a physician and the trend of prescription-use by a person would provide some clues and a few understanding on the health situation of a country². Several studies showed that patients failed to obtain the medicines prescribed for them because of the cost involved, on the other hand, they buy some unnecessary drugs with the money they earn to buy food³⁻⁵. Irrational use of herbal drugs, which sometimes contain allopathic drugs (in the guise of herbal drugs and ethnic cures), is also a common feature in many developing and few developed countries⁶. Lack of knowledge of essential drugs among drug-salesmen prescribing both Ayurvedic and western allopathic drugs in a single prescription are considered as the known determinants of irrational use of drugs in a community. Highest consumption of antibiotics and tonics is also observed as

unfavorable situation. The pattern of drug use in a mid-sized city like Mangalore located in the south west part of Karnataka in India can be considered as a representative sample of the situation prevailing in our country. In this regard, a questionnaire was developed, tested and finally implemented to collect facts on pattern of drug-use in a given area of India. The purpose of this study was to understand the situation regarding rational use of drugs aimed at improving the unfavourable condition(s).

MATERIALS AND METHODS

A total of 196 responders (responders are salesman in drug stores). Mainly there salesmen were running the drug stores. Sometimes they had to explain the drugs to a buyer. In this study (only five drug stores had registered graduate pharmacists working) 196 different drug stores in the municipality city area, were interviewed and investigated. A pre-tested questionnaire (Appendix 1) comprising 13 questions was introduced among drug-salesman to assess and understand the facts on pattern of drug-use in Mangalore city within municipal area of 73.64 sq. km., and a population of

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6,00,000. The questionnaire was explained to the responders by investigators (dental interns) who were trained to collect appropriate and non-biased information from responders. Informed consent was taken from responders to carryout the questionnaire survey among them. Out of 251 respondents working in 251 drugs stores in the survey area, 196 responders participated without any hesitation, resulting in a 78% respond.

RESULTS

Prescription varieties:

On an average, a drug store sells drugs to 144 buyers per day (Table 1). According to one hundred and twenty responders (61%), only 15-25% buyers produced a prescription from either a qualified doctor or a dentist. Sixty responders (31%) indicated that less than 15% buyers could actually produce a prescription, while 16 responders (8%) said that more than 25% produced a prescription from a qualified doctor or a dentist. On average about 30.6% buyers showed a prescription from a qualified doctor or a dentist (Table 1). Eighty responders (40.8%) informed that they waived prescriptions, containing both allopathic and ayurvedic drugs. Only 28 (14.1%) responders found no combined drugs in prescriptions (Table 3). Among the total medicines sold, antibiotics (55%) were the major portion followed by tonics (30%), antacids (10%) and other drugs 5% (Table 2). Table 3 indicates that ayurvedic practitioners were prescribing both ayurvedic and allopathic drugs in the same prescription, a fact reported by 105 responders (53.3%), on the other hand, only 35 (17.8%) doctors and dentists prescribed both the drugs in the same prescription. Interestingly, there was no prescription from qualified allopathic practitioners (i.e., physician/dentist) who prescribed only Ayurvedic drugs in their prescription. One hundred and thirty six responders (69%) indicated that many buyers insisted on getting an advice about which drug to use for their illness (Table 4). One hundred and thirty two responders (67.3%) explained that many buyers did not buy full course of drugs. (Table 4).

Knowledge of essential drugs and generic names:

Only 14 responders (7.1%) were able to state that they heard about Essential Drugs of World Health Organization (Table 4). Out of 196, only 2 (1%) responders exhibited knowledge of generic names of few drugs (Table 4). Interestingly, a significant number of prescriptions from doctors and dentist are not easily readable, 147 (75%) respondents reported this fact (Table 4). The prices of drugs are increasing was answered by 196(100%) responders (Table 4). One hundred sixty nine responders answered that prescription from den-

TABLE 1: PRESCRIPTION-BASED DRUG SALES AS A PERFECT OF TOTAL SALES.

No. of shop-keepers (%)	Prescriptions (%)
120 (61)	15-25*
60 (31)	<15
16 (8)	>25
196 (100)	(30.6)

*p<0.01 Shopkeepers are those 196 drug-salesmen who answered the questionnaire.

Prescription means prescription written by qualified Practitioners who were qualified MBBS doctors and BDS dentists.

TABLE 2: DRUG CATEGORIES AS A PERCENT OF TOTAL DRUGS SOLD.

Drug categories	% of total sale
Antibiotics	55*
Tonics	30
Antacids	10
Others	5

*p<0.01 Drugs categories means different generic group of drugs as written in prescriptions by the practitioners.

tists constituted less than 15% of total prescriptions (Table 3).

DISCUSSION

In this study we found that in all most all drug stores, the persons dispensing prescriptions are non pharmacist stores, a situation that is comparable to other countries in this region⁸. It was found that everyday a drug store was selling drugs to 144 customers. However, we could not find any similar studies to compare the situation on drug-use in other cities of the country. Sixty one percent responders answered that only 15-25% customers bought medicines on a prescription given by qualified doctors or a dentist (Table 1). The situation is not favorable, as there would be a possibility of indiscriminate use of drugs which is similar to the one prevalent elsewhere in Africa and some other Asian countries⁹. Data in Table 3 indicated that the prescriptions included both ayurvedic and allopathic drugs the similar situations were evidenced elsewhere too¹⁰. This study revealed that 53.3% of ayurvedic practitioners were prescribing both

TABLE 3: A PROFILE OF PRESCRIPTION THAT SHOWED ALLOPATHIC AND AYUERVEDIC DRUGS.

Practitioners	Type of drugs prescribed		
	Ayurvedic drugs (%) alive	Both Drugs (%)	
Medical doctors	0 (0)	35 (17.8)	
Ayuurvedic practitioners	26 (28.5)	105 (53.5)*	
Prescriptions from dentist	Percent	% Respondents	
	Below 15*	86	
	Between 15-50	14	
Answers on	Yes (%)	No (%)	Unclear
Prescriptions had both drugs	80 (40.8)*	28 (14.1)	88 (44.8)

*p<0.001 Practitioners means medical doctors, dental doctors and ayurvedic practitioners who had prescribed drugs in prescriptions. Type of drugs means different category of drugs i.e., allopathic and ayurvedic drugs. Both drugs means allopathic and ayurvedic drugs.

ayurvedic and allopathic drugs (Table 3), and such practice might cause major public health hazards, because the ayurvedic practitioners do not have the knowledge of modern allopathic drugs. As per regulations a qualified medical and dental practitioner should only prescribe the allopathic drugs, but in this study, it was found that 17.8% of medical practitioners also had prescribed both types of drugs, which is once again irrational and unethical. There must be a regu-

lation with proper implementation of the guidelines on prescribing drugs by medical practitioner and ayurvedic practitioners.

It has been reported that a co-trimoxazole and sulphamethoxazole tablet that was available in the guise of a "herbal" drugs, (coated with a green-colored dye) which was prescribed by an ayurvedic practitioner to a child suffering from fever. The preparation caused severe manifestation of Steven's Johnson Syndrome (SJS) with multiple perioral muco-cutaneous and ocular lesions in that child (A. D. Choudhury, Personal Communication). Therefore, the consequence of improper use of drugs may create a serious health hazard to a person, reported elsewhere¹¹. Table 2 showed the highest consumption of antibiotics followed by tonics. This situation revealed that Indian community is spending big amount of money to buy tonics and antibiotics. Many qualified physicians were prescribing tonics, perhaps being influenced by sales representative of drug companies. Moreover a patient used to buy tonics over the counter of a drug store. Results revealed that the antibiotics were sold at highest proportion (55%), is a situation in many countries of Asia and Africa^{12,13}. As shown in Table 4, 69% respondents explained that the patients for an advice about which drugs they should take since they do not possess a prescription for any drug. This situation is very common in many developing countries and also evidenced in this study. As per table 4 it was observed that only two salesmen (1%) knew the generic name of few drugs like antibiotics and analgesics, which did 63 responders (32.1%) report. One hundred and thirty one responders did not know the generic names of drugs, and explained that they never heard about "generic names of drugs". Therefore, there is a possibility of making a mistake during selecting a proper drug or alterna-

TABLE 4: KNOWLEDGE AND UNDERSTANDING ON RATIONAL USE OF DRUGS AND PRESCRIPTION.

Questions	Response		
	Yes	No	Ignorant
Are you aware of Essential drugs of WHO?	14 (7.1)	182 (92.8)*	0
Do you know the generic name of common drugs?	2 (1)	131 (66.8)	63 (32.1)*
Do your customers buy full course of drugs prescribed?	56 (28.8)	132 (67.3)*	8 (4)
Do you think the prices of drugs are at the increase?	196 (100)*	0	0
Do customers request you for advise on drugs?	136 (69)*	46 (23.4)	14 (7.1)
Can you easily read all the prescriptions?	147 (75)	49 (25)	0

*p<0.001 numbers in parenthesis indicate percent of total responders.

TABLE 5: QUESTIONNAIRE USED FOR THE SURVEY ON DRUG USE.

Questions	Answers
Q1. On average how many purchase drugs from your shop per day? (verify it from your sale records)	A1. _____
Q2. How many buyers do not bring prescription from a qualified doctor and dentists?	A2. 15-20%/15-25%/More than 25% different_____
Q3. Which drugs do you sell more? Write it serially.	A3. Your answer_____
Q4. Do you find prescriptions which include both allopathic and Ayuervedic drugs?	A4. Yes/No
Q5. Who are prescribing the allopathic and Ayurvedic drugs in a single prescription?	A5. MDDS/BDS Ayuervedic practitioner
Q6. Do you find Ayurvedic practitioners prescribing allopathic drugs?	A6. Yes/no
Q7. Do you hear a request from customers to advise drug(s) for his/her illness?	A7. Yes/No
Q8. If yes, what is the percentage approximately?	A8. Your answer_____
Q9. Do you think all the customers buy their full course of drugs?	A9. Yes/No
Q10. Did you hear the term "Essential Drugs"?	A10. Yes/No
Q11. If yes, can you tell which organization introduced the concept of "Essential drug"?	A11. Your answer_____
Q12. Approximately how many prescriptions are coming from dentist?	A12. 5-10%/11-20%/21-30%/31-40% Above 40%
Q13. Do you think the prices of drugs continuously on the increase?	A13. Yes/No

Pre-tested structured questionnaire with single and multiple questions were used by questionnaire surveyors (trained interns). The surveyors explained the questionnaire to the responders (i.e., drug salesmen) for clear understanding of individual question.

tive branded-drug belonging to the same generic name. A salesman can substitute the drug on the basis of generic name of a particular drug, provided the salesman had the knowledge of generic name of that particular drug. To promote business some drug companies are manufacturing and marketing useless drugs to the consumers through health care providers and sometimes through salesmen of a drug store, which is an identified limiting factor to promote rational use of drugs^{14,15}. Therefore, the appropriate authority like department of drug administration should have control over irrational production and promotion of useless drugs. At the same time, a drug salesman should have better understanding on essential drugs and knowledge of generic names of drugs, which would improve the condition, such initiatives

were successfully taken elsewhere¹⁶. Again 75% respondents explained that they could not easily read the prescriptions, and that may lead to a mistake during dispensing a drug by a salesman, those facts were reported elsewhere in Africa and Asia¹⁷. Aiming to control the prices of drugs the governmental authority should strongly implement the rules for production of quality drugs by maintaining a good manufacturing practice (GMP), and at the same time ensuring the supply on demand.

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