Research Paper

Knowledge and Attitude of Drug Sellers towards Dispensing Antibiotic in Mysore City: A Cross-Sectional Survey

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ABSTRACT: *Lenient attitude and practices of the drugsellers towards antibiotic has led to the present study to assess the knowledge and attitude towards dispensing antibiotic among drug sellers of Mysore City. **Methodology**- List of all registered drugstores in Mysore city was obtained from the Drug Control Center, Mysore. A total of 131 drug sellers gave consent and filled the questionnaire consisting of 12 items in English. For the data analysis, the individual scores were summed up to yield a total score. The mean of the scores were obtained and an ordinal scale was developed by using Hamilton and Coulby (1991) formula i.e.mean±1 standard deviation and the overall knowledge was divided into low, medium and high .**Result**- 22.9% of them had low level of knowledge, 58.8% of them had medium knowledge and 18.3% of them had high knowledge .High value of SCI (4.2) shows positive attitude towards dispensing antibiotics.*

I. INTRODUCTION

In developing countries, infectious diseases have great negative impact on public health[1.]Although discovery of antibiotic have revolutionized the treatment of infections[2] but use, including over- and misuse, of antibiotics is frequently reported[1.]

India being a developing country where there is poly pharmacy along with high rate of Illiteracy, inadequate information about medications usages and heavy patients load, there is significant drug related problem.[3,4]

In the developing world, drug sellers operating in the informal sector are often the first source of health care, especially in settings where self-medication is the norm. Reasons cited by patients include expediency, convenience, efficacy of medicines, dependability of supply, and cost reduction. This has important implications for the role of drug sellers, more so for those with no qualifications in pharmacy. Unfortunately many drug sellers tend to recommend medicines with lucrative profit margins without sufficient concern for the appropriateness (indications, efficacy, and safety) of the drug[5].

Many people prefer to purchase drugs directly from pharmacies instead of from physicians because of easier accessibility, lower cost, and closer social and cultural ties. The level of knowledge of dispensers about illness and correct use of antibiotics has not been well researched[6.]

The knowledge of antibiotics and lenient attitude and practices of the drugsellers towards antibiotic has led to the present study to assess the knowledge, attitude towards dispensing antibiotic among drugsellers of Mysore City.

II. MATERIAL AND METHODS

The present study was a descriptive one using cross-sectional survey among drug sellers who were dispensing drugs in Mysore City. List of all registered drugstores in Mysore city was obtained from the Drug Control Center, Mysore.

A total of 167 drugsellers were there in Mysore City, out of which 131 gave consent to participate. They were informed that participation is voluntary and confidential. It was emphasized that the study is not part of any official drugstore inspection function.

Questionnaire was prepared according to the objective of the present study. Pretesting of the questionnaire was done to make changes in the questionnaire mainly concerning the wording and understanding of the subject and final pre-designed questionnaire in English consisted of 12 items. The questionnaire was divided into two sections: Section A solicited information on demographic factors (Age and Gender), educational qualification (Degree in pharmacy / non-pharmacy), working experience as drug sellers and Section B there were 8 items questionnaire eliciting Knowledge and 4 items eliciting attitude.

The respondents were asked to tick one option for knowledgeable questions and rate the rest questionnaire items using Likert scale[7] of 'Not concerned', 'Slightly concerned' ,'Concerned', 'Highly concerned' and 'Extremely concerned'. All the study participants self completed the questionnaire.

- For the data analysis, the individual scores were summed up to yield a total score. The mean of the scores were obtained and an ordinal scale was developed by using Hamilton and Coulby (1991) formula i.e.mean±1 standard deviation and the overall knowledge was divided into low, medium and high based on Hamilton and Coulby i.e mean±1SD.
- Low/unfavorable (<mean-1SD)
- Medium/favorable (mean-1SD to mean+1SD)
- High/most favorable (>mean+1SD)

The ratings were assigned weight values of 1,2,3,4 and 5, respectively. The total weight value (TWV)[8] for each item of the questionnaire was obtained through the summation of the product of the number of responses for each rating to a questionnaire item and the respective weight value.

The indices for social concern (SCI),[8] for each of the questionnaire items were arrived at by dividing the summation of the TWV for each variable by the total number of respondents (n=136). The concern index (SCI) ranged from 1 to 5; the closer the value to 5 the higher the assumed variable concern among drugsellers.

The mean value of index was calculated by the addition of the concern index generated from each of the variables/groups of the questionnaire divided by the number of questionnaire item (Total Questionnaire =3).

$$TWV = \sum_{i=1}^{5} P_i . V_i.$$

Where, TWV is the total weight value, P_i is the number of respondents rating a questionnaire item i and V_i is the weight assigned to questionnaire item i.

$CI = TWV/N$ = mean of the study population

Where N, is the number of study population, is 136 and CI is concerned index.

$$Average\ CI= \sum_{i=1}^{5} CI / n$$

Where n is the number of questionnaire items, is 3.

SPSS for Windows version 16.0 (SPSS Inc., New York, USA) was used for the statistical analysis.

III.   RESULTS

Table 1a depicts that over a two third were between the age group of 20-40 yrs (78.6%) and only 23.7% were from the stream of pharmacy .Table 1b depict less than half of the participants i.e. 43.5%   were having experience of more than 10 years as drug dispenser, 38.9% were having 5-10 years of experience and 17.6% were having less than 5 years of experience.

Table 2 depict the overall knowledge among drugsellers, 22.9% of them had low level of knowledge, 58.8% of them had medium knowledge and 18.3% of them had high knowledge.

Table 3 Shows the high concern of drugsellers towards dispensing antibiotic with the CI valaue of 4.2.

TABLE Ia: DISTRIBUTION OF STUDY POPULATION ACCORDING TO EDUCATIONAL QUALIFICATION

Educational Qualification	Frequency
Pharmacy	31(23.7%)
Non-Pharmacy	100(76.3%)
Total	131

TABLE Ib: DISTRIBUTION OF STUDY POPULATION ON THE BASIS OF YEAR OF EXPERIENCE AS DRUG DISPENSER

Years in Experience	Frequency
<5	23(17.6%)
5-10	51(38.9%)
10+	57(43.5%)
Total	131

Table 2. Questionnaire items on knowledge towards antibiotic

Item (n = 131)	1	0
1. What is an antibiotic?	40	91
2. Which of the following is an antibiotic?	81	50
3. Can antibiotic treat all types of infection?	50	81
4. Can all antibiotics be used for the same infection?	108	23
5. Do you believe that some of the antibiotics(medicines) are useful in treating viral infections?	26	105
6. Do you know that antibiotics have specific side effects?	108	23
7. Did you ever heard about the problem of antibiotics, which were commonly prescribed by doctors earlier, are no longer acting now (antimicrobial resistance)?	50	81
8. Which of the antibiotic which were active against certain infection has become inactive now.	28	103

1 = correct   0 = Wrong
Mean = 3.74
SD = 1.06

Table 3. Questionnaire items on attitude towards dispensing antibiotic

Item (n = 131)	1	2	3	4	5	TWV	SCI	(SCI – MeanSCI)
1. All the antibiotics should maintain international quality and manufactured as per GCP standards.		0	5	3	36	87	611	4.49	0.20
2. The drug generic name and trade name should be cross checked before dispensing it.	1	1	3	31	95	529	3.89	-0.40
3.Is it necessary to instruct the patient how to use the antibiotics as per prescription while dispensing them?		0	2	3	30	96	613	4.7	0.50

1 = Not concerned: 2 = Slightly concerned: 3= Concerned: 4 = Highly concerned: 5 = Extremely concerned
TWV = Total Weight Value
SCI = Indices for social concern
Mean SCI = 4.2

To our knowledge, this is the first study from India linking antibiotic dispensing practices to drugseller knowledge and attitude. Due to limited literature, direct comparisons are difficult to make.

Although the drug sellers lack higher education and formal pharmacy training. We do believe however that reflecting on one's practice without having access to scientific facts might lead to drawing unconventional or even incorrect conclusions in science-based professions such as pharmacy and medicine.

Regarding the overall knowledge among drugsellers ,22.9% of them had low level of knowledge, 58.8% of them had moderate knowledge and 18.3% of them had high knowledge. In a study conducted by Nina Viberg in Tanzanian drugsellers founded that drugsellers have considerable "knowledge" of antibiotics and a perception of antibiotic resistance based on practical experience.

When asked that antibiotics can treat viral infection, 80.2% stated yes which is much higher than the study conducted by Nina Viberg where only 24% of drugsellers said that antibiotics can be used for treating viral disease.61.8% said that antibiotic can treat all type of infection whereas study conducted by Nina Viberg, only 3% said 'all diseases' can be treated with antibiotics .

One of the reason for this low knowledge could be that most of the drug   sellers in Mysore city are unqualified as pharmacist and even those who belong to extreme of pharma do not update their knowledge or are not in the habit of reading the book/literature related to it.

Only 38.2 % had heard of antibiotic resistance which is much lesser than the finding of study conducted by Nina Viberg where 72% had heard of antibiotic resistance. This could be due to their lenient behavior towards updating their knowledge and poor communication between doctors and drugsellers and among drugsellers too.

India is the country where most of the communicable disease is spreading at the larger rate and reversal of tuberculosis is one of the good example which has made the newspaper full of superbug and drug resistance news. So,This ignorance in knowledge can also be attributed to their poor correlation of their present knowledge to the coming news in news paper and other media of communication.

Regarding the overall attitude, CI value of 4.2 shows most favorable attitude of the drugsellers towards dispensing the antibiotics.

This finding shows that the topic of antibiotic is given higher priority which does not match with the level of knowledge in present study. This discrepancy in knowledge and attitude could be due to sensitivity of the some questions which made them to answer inconsistently than actual what they feel.

We acknowledge that the Drug Control Center list (used due to the absence of any more formal listing) may not include all pharmacies in Mysore City and could lead to a bias in sampling, although a large majority of outlets are believed to be represented.

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