

# Self – Medication of Anti-microbial Agents (AMAs) and Over-the-Counter Practices: A Study in Mymensingh Sadar Area

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## Abstract

Self-medication is common in countries where prescription legislations are not strong enough and drugs are available over the counter. This study was conducted to assess the self-medication by antibiotics in Mymensingh Sadar Area population and determine the factors related to it. This descriptive study was conducted in Mymensingh Sadar Area between January 2010 and December 2010. Convenient sampling was used to select respondents from among those who came to the community pharmacies to purchase drugs for self-medication. Respondents were interviewed after they made their requests but before they were provided with information on the drugs they requested. Data were collected using structured questionnaire. Drug consumers consisted of all age categories of both genders; as well as different occupations of varying educational background levels. The most frequently reported illnesses that prompted self-medication of respondents were fever, dental pain, cough & common cold, dermatological and ENT problems. Over 42% of them made their requests by telling symptoms of illness and 32.3% obtained advice from traditional healers. The most common reasons reported for self-diagnosis and self-medication were cost of physician service and non-seriousness of the disease. More than 13 different types of antibiotics were requested, the most frequent category of antibiotics being ciprofloxacin/other FQS 21%, amoxicillin 16.5%, azithromycin/erythromycin 14% and cephalosporin 13.3%. Self-medication is widely practiced for a wide range of illnesses or symptoms of illnesses and for over-the-counter. The public as well as the health care providers have to be educated on the scopes of self-medication; i.e., the type of illnesses to be self-diagnosed and self-treated and the type of drug products to be used in order to promote responsible self-medication.

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## Introduction

Medication refers to the act of consuming medicines for prevention, diagnosis or treatment of diseases. Correct medication is observed by reporting any symptom or disease to the physician in the hospital or clinic who diagnoses and prescribes the needed drugs to alleviate the condition. This is usually followed by filling of such prescriptions at the pharmacy by the pharmacist<sup>1</sup>. Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms. Over-the-counter drugs are a form of self medication. The buyer diagnoses his own illness and buys a specific drug to treat it.<sup>2</sup>

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A large number of people, when they fall sick, do not consult the physician. They either consult a drug store and obtain a medicine from the shelf or may consult a neighbour who may be having some tablets left over from his previous illness and readily spares them.<sup>3</sup> A major shortfall of self-medication is the lack of clinical evaluation of the condition by a trained medical professional, which could result in missed diagnosis and delays in appropriate treatments.<sup>4</sup> A major problem with self-medication with antimicrobials is the emergence of human pathogens resistance. Self-medication with antibiotics is of serious medical concern. Antimicrobials resistance is a current problem world-wide particularly in developing countries, where antibiotics are often available without a prescription.<sup>5</sup> The important public health threat of antibiotic resistance depends on antibiotic overuse/misuse.

Self-care is a predominant therapeutic activity consisting 30-40% of the disadvantaged populations including women, elderly, ethnic minorities and poor in Bangladesh.<sup>6</sup> Self-medication as a mean of self-care through the purchase of over-the-counter (OTC) medicines is, and always has been common in the society for a wide variety of minor ailments, such as headaches, colds and indigestion. But such products can often be misused or abused.<sup>7</sup> Over-the-counter medicines have emerged as drugs of serious misuse across Bangladesh, and other neighbouring countries. One report estimates that there are 4 million drug misusers in the South Asian region, where Bangladesh accounts for half a million of the total.<sup>8</sup> Along with the common practices of self medication, almost every drug store salesperson is illegally involved in the recommendation and sells of prescription only medicines in Bangladesh.<sup>9</sup> Self-medications in a country with low literacy level like Bangladesh is very important where prescription medicines are freely available. This may pose serious risks related to inappropriate and irrational personal use of medicines. Some sporadic studies reported awful self-medication behaviours among general populations in Bangladesh. Therefore, the present study was undertaken to assess the self-medication by antibiotics in Mymensingh Sadar Area

population and determine the factors related to it.

## Methods:

A community-based, descriptive study was conducted at community pharmacy center in Mymensingh Sadar Area in January 2010 and December 2010. Because of the absence of relevant data, we estimated a sample size of approximately 400 for an assumed prevalence of self-medication of 50%, a 95% confidence level and a 5% margin of error. These patients were asked to answer an anonymous questionnaire regarding their use of medicine in the twelve months preceding the present illness. Selection of the participants was based on convenient sampling from amongst all the patients; every visitor was chosen and verbal consent obtained after briefing them on the objectives of the study. The choice of medications was made either by the patient or selected by the community pharmacist. Those patients were asked to verbally answer a 54-item questionnaire that include questions about age, sex, monthly income, level of education, occupation, illness among patients seeking for self medications, type of request for self medication by drug consumers, source of advice for self-medication by drug consumers, factor influencing of self medication and pattern of various antibiotics used were also noted. The survey data were checked, coded and entered into a SPSS statistical package (Version 11.5). The data were then cleaned and analyzed using descriptive statistics were used to determine frequency of the responses and shown as mean  $\pm$  SD.

## Results:

An analysis of the results showed that of the 400 respondents surveyed, majority of them were male (75.8%). The male to female ratio was 3.1:1 and the mean age was age  $37.5 \pm 0.4$  years. Over 40% of customers had monthly income less than Taka 10000, 43.6% between 10000 - 20000 and 15.2% more than Taka 20000. The mean monthly income was Taka  $10469.8 \pm 385.7$ . A higher proportion of customers was HSC and graduate & above level educated and students were predominant who came to purchase drugs

(without prescriptions) for self-medication (Table I).

Frequently reported illnesses or symptoms of illnesses that prompted respondents for self-medication as shown in Table II, were 1.3% headache, 9.3% dental pain, 6% muscle & joint pain, 9.8% cough & common cold, 5.3% gynecology & contraceptive problem, 7.3% dermatological problems, 3.5% ophthalmic conditions, 5.5% urinary tract infection, 0.5% general weakness, 5% acute watery diarrhea, 4.5% acute trauma, 1.3% oedema, 5.5% asthma & others COPD, 12.5% fever, 4.8% amoebiasis, 7.5% dysentery, 8.8% ENT problem, 1.3% oral thrush and 2.5% burn.

Asked about type of requests for self-medication, 18.8% of them made their requests by mentioning specific names of the drugs or drug products, 42.3% of the drug consumers told their symptoms to the persons who stood behind the counter in the pharmacies, 0.5% of the respondents requested drugs by mentioning the category of drugs, 12.5% of the drug consumers were requesting drugs by showing old samples or packages of drug products, 24.8% presenting piece of paper (not a prescription) and 1.1% described physical characteristics of drug (Table III).

In the present study, nearly one-quarter (23.5%) of drug consumers reported that they obtained advice from health care providers but without formal prescriptions, 26.3% of them said they were advised by friends, relatives or neighbours, who themselves had no background in the health profession. About 15% of customers requested OTC drugs of the advice of pharmacists or other personnel working in pharmacies, 0.8% read material and 32.3% received advice from traditional healers (Table IV).

Asked as to why they resort to self-diagnosis and self-medication, a large proportion of respondents replied that cost of physicians service. About 20% of them opinion that disease is not serious, 13.5% complaints excess unnecessary lab investigations, 9.5% lack of time, 7% lack of truthful physician and 1% of the respondents requested drugs for familiar with disease & its remedy (Figure 1).

Drug consumers were also asked or observed on the types of drugs they request for self-medication. More than 13 different types of drugs or category of drugs were requested, 9.3% of the drug consumers mentioned Pen-V, 6.5% Cloxacillin/ Flucloxacillin, 13.3% Cephalosporin, 16.5% amoxicillin, 21% ciprofloxacin/other FQS, 12.8% metronidazole, 14% azithromycin/ erythromycin, 1% cotrimoxazole, 1.3% doxycycline/ Tetracycline, 2% albendazole/ mebendazole, 5%azole antifungal drugs, 6.3% gentamycin/ neomycin and another 1% chloramphenicol (Table V).

**Table I: Socio-demographic characteristics of drug consumers (n= 400)**

| Socio-demographic characteristics      | Frequency | Percentage |
|----------------------------------------|-----------|------------|
| <b>Age (years)</b>                     |           |            |
| <30                                    | 59        | 14.8       |
| 30 – 40                                | 132       | 33.0       |
| 40 – 50                                | 168       | 42.0       |
| ≥50                                    | 41        | 10.3       |
| <b>Sex</b>                             |           |            |
| Male                                   | 303       | 75.8       |
| Female                                 | 97        | 24.3       |
| <b>Monthly income (Taka) (n = 303)</b> |           |            |
| <10000                                 | 125       | 41.3       |
| 10000-20000                            | 132       | 43.6       |
| >20000                                 | 46        | 15.2       |
| <b>Educational level</b>               |           |            |
| Illiterate                             | 74        | 18.5       |
| Read and write                         | 58        | 14.5       |
| Below SSC                              | 43        | 10.8       |
| SSC                                    | 45        | 11.3       |
| HSC                                    | 90        | 22.5       |
| Graduate & above                       | 90        | 22.5       |
| <b>Occupation</b>                      |           |            |
| Housewife                              | 54        | 13.5       |
| Service                                | 79        | 19.7       |
| Business                               | 95        | 23.7       |
| Farmer                                 | 43        | 10.8       |
| Student                                | 129       | 32.3       |

**Table II: Illness among patients seeking for self medications (n= 400)**

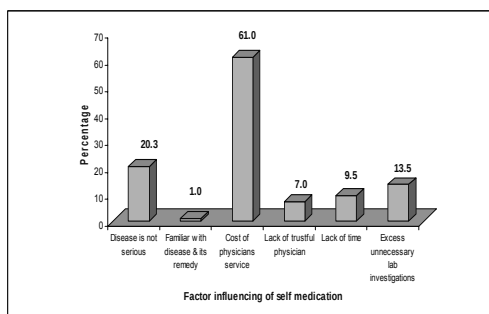
| Illness                            | Frequency | Percentage |
|------------------------------------|-----------|------------|
| Headache                           | 05        | 1.3        |
| Dental pain                        | 37        | 9.3        |
| Muscle & joint pain                | 24        | 6.0        |
| Cough & common cold                | 39        | 9.8        |
| Gynecology & contraceptive problem | 21        | 5.3        |
| Dermatological problems            | 29        | 7.3        |
| Ophthalmic conditions              | 14        | 3.5        |
| Urinary tract infection            | 22        | 5.5        |
| General weakness                   | 02        | 0.5        |
| Acute watery diarrhea              | 20        | 5.0        |
| Acute trauma                       | 18        | 4.5        |
| Oedema                             | 05        | 1.3        |
| Asthma & others                    | 22        | 5.5        |
| COPD                               |           |            |
| Fever                              | 50        | 12.5       |
| Ameobiasis                         | 19        | 4.8        |
| Dysentery                          | 30        | 7.5        |
| ENT problem                        | 35        | 8.8        |
| Oral thrush                        | 05        | 1.3        |
| Burn                               | 10        | 2.5        |

**Table III: Types of requests for self-medication by drug consumers (n= 400)**

| Self-medication by drug consumers              | Frequency | Percentage |
|------------------------------------------------|-----------|------------|
| Mention name of drug                           | 75        | 18.8       |
| Telling symptoms of illness                    | 169       | 42.3       |
| Mentioning category of drug                    | 02        | 0.5        |
| Showing old sample/package of drug             | 50        | 12.5       |
| Presenting piece of paper (not a prescription) | 99        | 24.8       |
| Describing physical characteristics of drug    | 05        | 1.1        |

**Table IV: Sources of advice for self-medication by drug consumers (n= 400)**

| Sources of advice for self-medication                     | Frequency | Percentage |
|-----------------------------------------------------------|-----------|------------|
| Advised by health care providers but without prescription | 94        | 23.5       |
| Advised by friends/relatives/neighbors                    | 105       | 26.3       |
| Pharmacist or working in pharmacy                         | 61        | 15.3       |
| Read materials                                            | 03        | 0.8        |
| Advice from traditional healers                           | 129       | 32.3       |

**Fig.1: Factor influencing of self medication (n= 400)****Table V: Pattern of various antibiotics (n= 400)**

| Pattern of various antibiotics | Frequency | Percentage |
|--------------------------------|-----------|------------|
| Pen-V                          | 37        | 9.3        |
| Cloxacillin/Flucloxacillin     | 26        | 6.5        |
| Cephalosporin                  | 53        | 13.3       |
| Amoxycillin                    | 66        | 16.5       |
| Ciprofloxacin/other FQS        | 84        | 21.0       |
| Metronidazole                  | 51        | 12.8       |
| Azithromycin/Erythromycin      | 56        | 14.0       |
| Cotrimoxazole                  | 04        | 1.0        |
| Doxycycline/Tetracycline       | 05        | 1.3        |
| Albendazole/Mebendazole        | 08        | 2.0        |
| Azole antifungal drugs         | 20        | 5.0        |
| Gentamycin/Neomycin            | 25        | 6.3        |
| Chloramphenicol                | 04        | 1.0        |

\* Multiple responses

## Discussion

The present study highlights the problem of self-medication with antibiotics as OTC (Over the Counter) at Mymensingh Sadar Area. In both developed and developing countries, self-medication with antibiotics is common for illnesses. However, the methods used in the present study make it possible to document that the prevalence of non-prescription use of antibiotics for customers. Our study confirms age played a role in the issue of self medication among the patients. The major factors associated with self medication with antibiotics is assumed knowledge on diseases and their treatments, financial status, advice by friends/relatives/neighbors, advice from traditional healers, cost of physicians service, excess unnecessary lab investigations, lack of time and "unseriousness" of the nature of illness. Studies in Spain and Nepal<sup>10,11</sup> showed a tendency for undesirable self medication with respondents 40 years of age and below, respondents who live alone or students than other groups of people. Self medication in general is quite high even in the educated class of different countries. In different studies it is 45% in Turkey,<sup>12</sup> 14 94% in Hong Kong<sup>13</sup> and 88% in Croatia.<sup>14</sup> Our study is on the rural population and such a high prevalence was found in illiterate, HSC and graduate & above level educated adult respondents.

According to respondents, about 9% of the drug consumers mentioned Pen-V, 6.5% cloxacillin/Flucloxacillin, 13.3% cephalosporin, 16.5% amoxicillin, 21% ciprofloxacin/other FQS, 12.8% metronidazole, 14% azithromycin/erythromycin, 1% cotrimoxazole, 1.3% doxycycline/tetracycline, 2% albendazole/mebendazole, 5%azole antifungal drugs, 6.3% gentamycin/neomycin and another 1% chproamhnocol. This rate is very high compared with results conducted in Jordan (23%), and lithuania (39.9%).<sup>15,16</sup> The self use of antibiotics is also very common in Sudan (48%)<sup>17</sup> while it is not very high in our neighborhood India where it has been quoted as 18%.<sup>18</sup> In a study conducted in Pakistan, the prevalence of self medication among university students was 76%.<sup>19</sup> This study conducted in Karachi had almost similar results to ours in certain areas. The most common symptoms were headache (72.4%)

and fever (55.2%) against ours 1.3% and 12.5%. The difference between the symptoms was probably due to the fact that our study was conducted exclusively on the use of antibiotics while that study was conducted on self-medication of any drug. Our results also comparable to those of rural population in Greece were amoxicillin (18.3%), amoxicillin/clavulanic acid (15.4%), cefaclor (9.7%), cefuroxim (7.9%), cefprozil (4.7%) and ciprofloxacin (2.3%). Fever (41.2%), common cold (32.0%) and sore throat (20.6%) were the most frequent indications for their use.<sup>20</sup> A recent study in Pakistan reported that the antibiotic most frequently used were amoxicillin/clavulanic acid (45%), ciprofloxacin (31%), sulfamethoxazole/trimethoprim (18%), and clarithromycin (5%). Fever (70%), sore throat (22%) and common cold (8%) were the symptoms for self medication. High cost of health care was mentioned the reason for self-medication by majority (88%). Majority (82%) thought fever, sore throat and common cold as trivial illnesses controllable with self-medication.<sup>21</sup> It should be noted here that although acute and minor illnesses can be treated with appropriate self-medication, serious and longer duration of illnesses should get the attention of appropriate health care providers. On the other hand, drug consumers told their symptoms or complaints to the dispenser lending themselves to the care of the "pharmacist" to play their role as drug use educators and counsellors. Although the latter type of practice should be encouraged, much effort is required to advise/counsel or educate drug consumers in general and in particular those who request specific drugs or category of drugs as well as those who present old samples/ packages or pieces of paper for self-medication.

## Conclusion:

From the results it is apparent that self-medication is widely practiced by people of all age groups in the community of Mymensingh Sadar Area, despite good access to health care facilities adult population resorts to the use of antibiotics without a prescription for various reasons. The study has also revealed that the type of self-diagnosed illnesses/symptoms of illnesses and the category of drugs requested for self-

medication are extensive. Pharmacy staff behavior can be a factor that puts patients at risk for self-medication with antibiotics. Community pharmacies are failing their tasks in enhancing rational use of antibiotics. Such a practice may be a consequence of weak enforcement and control over the legislation and professional standards. We propose additional studies at other primary health care units situated in other parts Bangladesh to make generalisable conclusions for the whole country.

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