

Study on the pattern of prescriptions available at rural households in Bangladesh

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Abstract

This was a descriptive type of cross-sectional study conducted in October, 2010, in three villages of Shahjadpur Upazila of Sirajganj district in Bangladesh. Among the rural households, those who visited medical practitioners in the last three months, were included in the study. The present study aimed to examine the pattern of prescriptions available at rural households of Bangladesh, to analyze the prescriptions whether diagnoses and/or lifestyles advice were mentioned, and to find out number of drugs and antibiotics (including their dose and duration of use) prescribed. During last three months, 68% respondents had attended a doctor's chamber; however, prescriptions were available for 57% of the respondents. More than three quarters of the prescriptions (77.6%) included 3-5 medicines, and antibiotics were prescribed to 194 (61%) respondents which constituted 21.4% of the total number of drugs prescribed. The average number of drugs and antibiotics prescribed per prescriptions was 3.8 and 1.3 respectively. Only about 23% of the respondents received antibiotics for 3-6 days, 30% for 2 days, and 46% for one day. Advice on lifestyles and diagnoses were mentioned only to 32% and 52% prescriptions respectively. The study also found that 22.6% of the prescriptions were made by unqualified doctors. Specific programs should be implemented to motivate and train medical students, practitioners and allied health professionals to provide rational prescriptions to the consumers in regards to the number of drugs as well as clarity of instructions given in the prescriptions.

Keywords: Pattern of prescription, Rational use of antibiotics, Advice on lifestyle, rural household, Bangladesh.

Introduction

Health is an important individual and community need. Both preventive and curative medicines take the help of drugs to fulfil their respective aims. Each of the drugs has certain effects which are not sought for but have to be accepted. In most instances, it apparently does not harm the patients but sometimes the results have negative health consequences. Overuse of medicine should be considered as an undesirable and money wasting practice.¹ In 1975, World Health Organization (WHO) recommended to select and procure, at reasonable cost, the essential drugs of established quality according to the national health needs of the country.² Subsequently, historic Alma-Ata declaration, which outlined the eight essential components of primary health care, incorporated provision of essential medicines is one of components.³

Medicines are integral parts of modern healthcare services, not only save lives and promote health, but prevent epidemics and diseases.¹ The medicines are undoubtedly one of the weapons of mankind to fight disease and illness. Access to medicines is the fundamental right of every person. Irrational

Practice points

- The present study identified the potential problems of polypharmacy in the prescriptions available at rural households in Bangladesh.
- More than three quarters of the prescriptions included 3-5 drugs and more than half the prescriptions included at least one antibiotic.
- Advice on lifestyles was mentioned in one-third and diagnoses were written in half of the prescriptions.
- A significant portion of prescriptions was prescribed by non-qualified doctors.
- Specific programs should be implemented to motivate and train medical students, practitioners and allied health professionals regarding safe and effective prescribing.

drug use and inappropriate prescribing by healthcare professionals is a worldwide trend, most notably prevalent in developing countries.⁴ The main causes include: lack of

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continuing education and training and up-to-date knowledge of clinical pharmacology, inappropriate information from promotional materials of pharmaceutical companies, patient's pressure for medications of their choice, uncertainty about diagnosis, and direct stake of prescribers in selling more drugs.^{4,5} A study carried out in Japan showed that physicians tended to increase their income by prescribing more drugs than are needed for any particular disease.⁶ In Sri Lanka, Angunawela pointed out that drugs are sometimes prescribed without any specific indications and these are mostly mixtures, vitamins, and antimicrobials.⁷ In addition, prescriptions tend to increase the number of drugs prescribed per encounter and consequently leads to polypharmacy. Several factors and sources of drug information are also responsible for influencing physicians' prescribing pattern; among them are patient's demand, clinical experience, pressure from pharmaceutical companies and their representatives, house journals, drug samples, reference books, meeting, colleagues, and social cost and reward.⁸⁻¹⁰

Doctors bear the main responsibility for the use of drug. Several countries have adopted an essential drugs list but these had limited influence on the attitude and prescribing behaviour of the doctors.¹¹ For example, a study in Denmark found that 61.7% of the prescriptions were incorrect and diagnoses were mentioned in only in 32.4% of the prescriptions.¹² An analysis of 600 prescriptions of private practitioners in Bangladesh found that drugs were prescribed in generic name only in 5 prescriptions, 50% drugs were prescribed from the Essential Drug List, and only 17.5% of prescriptions were complete in respect to patient medical information, and on average 3.81 drugs were prescribed per prescriptions and antibiotics were prescribed in 72.5% of the prescriptions.¹³ The present study aimed to examine the pattern of prescriptions available at rural households of Bangladesh, to examine the socio-demographic characteristics of the respondents, to analyze the prescriptions whether diagnoses and/or lifestyles advice were mentioned, and to find out number of drugs and antibiotics (including their dose and duration of use) prescribed.

Methods

This cross-sectional descriptive study was conducted in Saktipur, Parkola and Prannathpur villages of Shahjadpur Upazila in Bangladesh in the month of October, 2010. Among the rural households, those who had visited a medical practitioner within the last three months (from July-September 2010) and were willing to respond were included in the study. The sampling technique was purposive. The sample size was 550 rural households. The data were collected face to face by trained interviewers through house visits with a pre-tested interview schedule and by collection of prescription details. The procedure also included a testing of 5% questionnaires of the total sample size in a place other than study area. Informed consent was sought from the participants and confidentiality of the information was maintained. All

statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS). Descriptive data has been given as frequencies and percentages.

Result

The socio-economic characteristics of the respondents are shown in Table 1. Respondents had a mean age of 34.8 years (SD=+13.09) and almost 73.3% respondents were found within age of 15-44 years of age. Approximately 73% respondents were found below SSC level of education, whereas 12.7%, 6%, 5.5% and 2.6% respondents had education equivalent to SSC, HSC, graduation, and post-graduation respectively.

Among 550 respondents, 375 (68%) visited the doctors chamber during last three months (Table 2); however, availability of prescriptions was found only to 57% respondents as 11% prescriptions were found lost by the respondents.

The average number of drugs prescribed per prescriptions was 3.8. The range of drugs prescribed varied from 3 to 5 in about 77.6% of prescriptions (Fig. 1). There was not a single prescription wherein no drug was prescribed. Antibiotics were prescribed to 194 (61%) respondents which constituted 21.4% of the total number of drugs prescribed (Fig. 2). The average number of antibiotics prescribed per prescriptions was 1.3. A single antibiotic was prescribed to 137 respondents, two antibiotics were prescribed to 49 respondents and three antibiotics were prescribed in the remaining 8 respondents. Only about 23% of the respondents received antibiotics for 3-6 days, 30% for 2 days, and 46% for one day.

Table 1: Socio-economic characteristics of the respondents

| Socio-economic characteristics | Number of respondents |
|---|-----------------------|
| Age in year | |
| 15-24 | 155 (28.2%) |
| 25-34 | 141 (25.6%) |
| 35-44 | 107 (19.5%) |
| 45-54 | 97 (17.6%) |
| 55-64 | 50 (9.1%) |
| Education | |
| <SSC (less than 10 years schooling) | 403 (73.3%) |
| SSC (10 years schooling) | 70 (12.7%) |
| HSC (12 years schooling) | 33 (6%) |
| Graduation (14-16 years schooling) | 30 (5.5%) |
| Post Graduation (>14 or 16 years schooling) | 14 (2.6%) |

Table 2: Attendance in the doctor’s chamber and prescription particulars

| Attendance and prescription particulars | Numbers |
|---|-------------|
| Attending doctors' chamber during last three months | |
| Yes | 375 (68.2%) |
| No | 175 (31.8%) |
| Advices on lifestyles | |
| Yes | 102 (32.1%) |
| No | 216 (67.9%) |
| Diagnosis of diseases mentioned in the prescription | |
| Yes | 168 (52.8%) |
| No | 150 (47.2%) |
| Qualification of prescribed doctors | |
| Qualified | 246 (77.4%) |
| Unqualified | 72 (22.6%) |

The recommended dosage of antibiotics was not mentioned in 29% of the prescriptions. Advices on lifestyle were found only in around one third of prescriptions (32%) and diagnosis of disease was mentioned only in about 52% prescriptions. Among the available prescriptions, 22.6% were from the non-qualified doctors.

Discussion

The present study was conducted to explore the pattern of prescriptions available at rural households in Bangladesh. The main findings revealed that more than three quarters of the prescriptions included three to five drugs and more than half the prescriptions included at least one antibiotic. The recommended dosage and duration of antibiotic usage were not mentioned in about one-third and three-fourth of the prescriptions respectively. Advice on lifestyles was

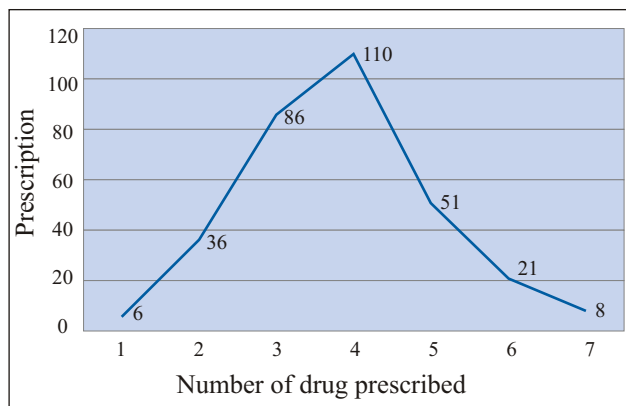


Figure 1: Distribution of number of drugs per prescription

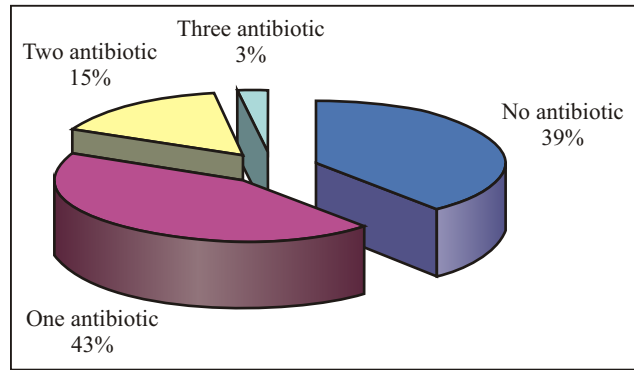


Figure 2: Distribution of number of antibiotics per prescription

mentioned in one-third, diagnoses were written in half of the prescriptions, and most importantly a significant portion of prescriptions was prescribed by non-qualified doctors.

We found average 3.8 drugs per prescription; however, a previous study from Bangladesh¹⁴ has reported a figure of 1.4 drugs per encounter. The figure of 3.8 drugs per encounter in the present study is higher than the recommended limit of 2.0 suggested by WHO.¹⁵ Our findings are similar to the findings reported in India,¹⁶ Cambodia,¹⁷ Nepal,¹⁸ Pakistan,¹⁹ Sri Lanka²⁰ and Nigeria²¹ (2.2 to 4.8 drugs per encounter). Prescribing three or more drugs increases the risk of drug interactions, dispensing errors, and proper comprehension of the correct dosage and moreover, development of antibiotic resistance.¹⁶ Such irrationalities in prescribing medicines and limited advice given to patients indicate that traditional teaching in medical schools and continuing professional development do not equip students and physicians for rational therapeutics.¹⁴ This is probably because their pharmacology training has more emphasis on theory than on practical aspects of prescribing.^{13,22}

Irrational use of antibiotic use remains the primary factor in the emergence and spread of antibiotic resistant organisms. Appropriate use of antibiotics is necessary to prevent emergence of drug resistant bacteria. Our figure of 61% prescriptions having an antibiotic which is much higher than the studies conducted in Bangladesh,¹⁴ India,¹⁶ Lebanon,²³ Nepal,¹⁸ and Tanzania²⁴ (17.5 % to 39.6%). In the present study, limited information was provided in the prescription regarding the duration of antibiotics and clinical diagnoses; one of the reasons may be the inclusion of 22.6% of the prescriptions from non-qualified practitioners. A study in USA revealed that 21% of all prescriptions contained at least one prescription writing error.¹⁰ The limited information on clinical diagnoses, course of drugs and others advices on lifestyle does not help to maintain a correct record towards better treatment. Moreover, incomplete information hinder patients' drugs taking compliance.¹⁷

WHO stressed that drugs are essential tools for health care and for the improvement of quality of life of the population and patients.² WHO also identified a number of essential drugs for the developing countries that proved significant efficiencies in promoting basic health care and health status of the population.²⁵ Bangladesh formulated its National Drug Policy in 1982 to ensure that common people can get the essential and necessary drugs easily and to ensure the quality and safety of these essential drugs.²⁶ However, the provision of availability, affordability and the rational use of drugs have not achieved as expected in the national drug policy. The irrational use of drugs, such as over-prescribing, practice of polypharmacy, use of unnecessary expensive drugs, and overuse of antibiotics and injections were observed in many studies.^{14,27}

Evidence shows that knowledge deficiency due to inadequate professional training and dependency on biased information perhaps contributed in irrational prescribing of drugs.^{13,28} Das & Rahman²⁸ demonstrated that prevalence of vitamin prescribing and contribution of vitamins in the cost of drugs prescribed in vitamin containing prescription were significantly ($p < 0.001$) decreased after educational interventions at rural governmental hospitals, non-government organizations and private settings in Bangladesh. It is essential to equip medical graduates about principles of prescribing and therapeutics, how drugs work, and basic knowledge about commonly used drugs.²⁹ An attempt has to be made to educate and train the medical students and tomorrow's doctors about the methods and skills required to evaluate the prescribing pattern, which in turn would improve the understanding and perception about rational prescribing.

Conclusion

The present study identified potential problems of polypharmacy, and overuse/misuse of drugs, especially antibiotics, and incomplete information in the prescriptions available at rural households in Bangladesh. The findings of the study demand a large-scale investigation on the pattern of prescriptions in rural Bangladesh. Specific programs should be implemented to motivate and train medical students, practitioners and allied health professionals regarding safe and effective prescribing. Strengthening the capacity of government institutes and regulatory bodies (e.g. the Directorate of Drug Administration) to oversee the quality and price of the drugs and implementation of the regulations are essential. In the long run, this will help to minimize drug resistance as well as economic loss of the country.

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