

## Use of Antimicrobials without Prescription

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### Abstract

**Background:** To evaluate the prevalence of antibiotic self medication and to assess the knowledge and reasons for the misuse of antibiotics.

**Methods:** In this cross sectional study 187 non medical employees of Rawalpindi Medical College were enrolled. Questionnaire was designed to assess reported purchase, name and use of antibiotic without prescription.

**Results:** The most commonly named antibiotic purchased and used without a prescription was Co-amoxiclav(37%) followed by Amoxicillin(22%). There was a significant difference between the educational level and antibiotics at the probability level of <0.05. Sore throat (27%) was the common condition for the use of antibiotics followed by fever and diarrhea (14%). Ten females out of 43 (23%) were the mother of 1-2 children, they commonly used Ceftriaxone (5%) for the cure of their children. Employees belonging to level 1 were illiterate; they never used antibiotics without prescription. Only 30% correctly named an antibiotic as the medicine purchased. Among the respondents who purchased an antibiotic without a prescription, 70% used medicine for inadequate duration (< 5days) or at wrong dosing intervals.

**Conclusion:** Prevalence of self medication with antimicrobials is high in educated employees, despite majority being aware of its harmful effects.

**Key Words:** Self-medication, non- prescription, antimicrobials

### Introduction

Self-medication is 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.<sup>1,2</sup> It may be used for the treatment of common health problems with medicines approved as safe and effective for use without medical supervision. Medicines for self medication are called nonprescription medicines or "over the counter" (OTC) medicines. Self medication with OTC has a rightful place in healthcare as it saves

money and time that otherwise is spent on visiting a doctor. Self medication with prescription medicines is common in developing countries where pharmacies freely supply even prescription medicines without a prescription due to lack of strict implementation of regulations and monitoring by drug regulatory authorities. People stock leftover medicines in their homes, reuse them, and pass them to friends and relatives who need them.<sup>3</sup> Antibiotics sales without medical prescriptions are increasingly recognized as sources of antimicrobial misuse that can exacerbate the global burden of antibiotic resistance. It is an important driver of antimicrobial overuse, especially, in low- and middle-income countries, where antibiotics are easily obtained over the counter.<sup>4</sup>

Since the introduction of penicillin, 60 years ago, antibiotics have played an important and crucial role in the treatment of infectious diseases, especially those caused by bacteria. However, the inappropriate use of those drugs has led to the phenomenon of antimicrobial resistance, which is becoming a worldwide public health problem.<sup>5</sup> Self-medication is an important driver of antimicrobial overuse, especially, in low- and middle-income countries, where antibiotics are easily obtained over the counter.<sup>6</sup> <sup>7</sup> In Pakistan, almost every pharmacy sells drugs without a prescription; a phenomenon seen in many developing countries<sup>8</sup> including Pakistan.<sup>9,10</sup>

### Subjects and methods

This cross sectional descriptive study included data from 187 Non-medical staff (104 men and 83women, mean age  $\pm$  SD: 30.2  $\pm$  1.8 years), among non-medical staff of RMC, Holy Family Hospital and Benazir Bhutto Hospital during Sep 2011-Jan 2012. A self-administered questionnaire was distributed amongst the subjects after explaining the purpose of the study and asked to return it after answering the questions. The refusal rates were low. Respondent were stratified according to literacy rate (Table1)

Questionnaire included items relating to knowledge, overall use of antimicrobial and self-medication with antimicrobial. Information about the type of antimicrobial, the sources of self-medication, the symptoms for which the drugs were reportedly used,

and duration of use were collected. As level-I subjects were illiterate so questions were asked verbally and response recorded by the researcher

### Results

Qualification affected the use of antimicrobials. Level- I belonged to peon, sweepers, security guard, chowkedar and aaya etc (Table 1).

**Table 1: Respondent stratification according to literacy rate**

Levels		Qualification	Respondents
*Level I	Illiterate	Nil-primary	Sweepers, Peon, Security guards, Aaya etc.
Level II& III	Semi literate-to literate	Primary-high secondary	Lab attendants, Technician, Clerks, Ward boys etc.
Level IV	Literate	higher secondary-highly qualified	Account officer, Admin officer, Technologist, Office superintendents etc.

\* Subjects belonging to level 1 were illiterate so they were asked question verbally

**Table 2. Antimicrobial self medication among non-medical staff and level of education**

Education	Level	Self medication (Male)		Self medication (Female)	
		Yes	No	Yes	No
Illiterate	I	0	20	3	18
Primary	II	5	15	6	15
Secondary& Higher Sec	III	21	5	16	2
Above	IV	31	7	18	5
Statistical significance		X <sup>2</sup> cal=2.26, P <0.05		X <sup>2</sup> cal=2.32, P <0.05	

**Table 3. Conditions for which self medication was practiced**

Condition	No (%)
Sore throat	52 (27)
Fever	27(14)
Cough	19(10)
Diarrhea	28(14.2)
Toothache	21(11)
Body ache	18(9)
Others	22(11)

Even they did not know about the word "antibiotic". This level never used antibiotics without consultation. But when the education level became

high, use of self medication also increased at the significant level of <0.05 (Table 2). In response to question whether respondents had practiced self medication in preceding 6 months, 53.47% admitted to the practice and there was a statistically significant difference among the different levels of education (p<0.05). The common condition for which the antibacterials were taken include sore throat (27%) (Tab.3). Coamoxiclav (37%) was the frequently used for self medication among the respondents (Tab. 4). Majority of the non-medical staff belong to level II, III & IV (80%) knew that the normal duration of treatment was supposed to be at least a minimum of 5 days, however only 37% of the respondents actually completed the course of treatment (Tab. 5)

**Table 4. Commonly used antibiotics by respondents**

Antibiotic	No (%)
Coamoxiclav	69(37)
Amoxicillin	41(22)
Erythromycin	12(6)
Ciprofloxacin	33(17)
Ceftriaxone	10(5)
Levofloxacin	10(5)
Pencillin G (Benzyl penicillin)	7(3)
Others	5(2)

**Table 5. Duration for antibiotics used by respondents (n=100)**

Days	No	Percentage
3 days	51±1.8 <sup>a</sup>	51%
5 days	37±0.5 <sup>b</sup>	37%
7 days	12±1.5 <sup>c</sup>	12%

### Discussion

The frequency of antibiotic self medication of non-medical staff observed in our study was 56.4%. Bang *et al* studied pre and post-interventional pattern of self medication in three common illnesses in non-medical staff of a tertiary hospital and reported that the prevalence of self medication was found to be higher among participants 72.85% for diarrhea, 65.33% for sore throat, and 66.66% for common cold. <sup>11</sup> Bangboye *et al* reported a high proportion of workers (73%) showed the practice of self medication and 95.6% of them correctly used appropriate drugs. <sup>12</sup> This is an expected observation as information about medicines is easily available through the media, internet, and direct-to-consumer advertising. <sup>11</sup> Ilhan *et al* , who studied self-medication with antibiotics among

primary care center attendants in Ankara Turkey and reported that the percentage of self-administering antibiotics was 19.1% in the last 12 months.<sup>13</sup>The choice of the antibiotics were Coamoxiclav(37%) and Amoxicillin (22%) by majority of respondents in our study. Other studies also revealed similar results.<sup>14,15</sup>

It was observed that education level influences the use of antibiotics. Studies reported that, the higher the education of workers the more is the proportion that practice self medication.<sup>12,16,17</sup> Self medication with antibiotics is significantly associated with age, income, and level of education. It seems that the reason for high self medication among literates may be due to an assumed knowledge about antibiotics.<sup>18-24</sup>

## Conclusion

Higher prevalence of antibiotics use without prescription, among the literates, can be ascribed to self assumed knowledge of the drugs

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