

## Irrational drug use based on self medication for some common clinical conditions in an educated population of Karachi

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### ABSTRACT

**Objectives:** To assess the irrational treatment approach for some common clinical conditions by females in higher educational institutes of Karachi, Pakistan.

**Methodology:** The study was conducted in two private sector institutes for higher education in Karachi from Jan 2011-June 2011. A pretested questionnaire containing open-ended and close-ended items was administered to female students and teachers.

**Results:** The tendency to self diagnose and self medicate (63.78%) is more than seeking appropriate medical treatment (36.21%). The most common condition treated by self medication is Headache (96.52%) and the most common condition in which appropriate medical treatment sought, is Respiratory infection(58.70%).Self medication is also reported in fever (80%), GI infections (61.30%), menstrual pain (73.91%), allergies (72.61%), cough (71.30%), minor cuts/wounds (85%) and (54.57%) in anemia/fatigue and general weakness.

**Conclusions:** Irrational drug use of OTC medicines and antibiotics commonly prevail in the educated population instigating the abuse potential and relative hazard. Effective regulation, control and pharmacovigilance in line with core intervention policies of WHO is required.

**KEY WORDS:** Irrational drug use, Self medication, Antibiotics, Analgesics, Cough medications, Educated females.

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### INTRODUCTION

The irrational treatment practice and drug use is defined by intake of inapt doses, poly pharmacy, misuse of antimicrobials and inappropriate self medication, often of prescription only medicines.<sup>1</sup> The practice of irrational drug use and the

implications of the relevant hazards are not restricted to low income countries and the misuse and overuse of even the critical drugs like antibiotics prevail worldwide to varying degrees.<sup>2</sup> There are multiple factors that promote such practice e.g. lack of general health awareness, low economic status, non availability of essential health care facility and deficient pharmacovigilance.

The present study focuses on irrational treatment approach for some common diseases and clinical conditions by an educated and relatively more aware group (regarding health issues) of female population comprising of the optimal age 18-28, in Karachi. This major city in Pakistan is comparatively more capable for providing health care facilities to the general population due to a large number of national and private sector hospitals and clinics. Self medication is noted to be a common practice with those drugs which are easily available and can provide immediate and easy symptomatic relief thus leading to a greater stipulation for analgesics

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and antimicrobials. The tendency to self medicate in conditions like fever, headache, systemic infections and allergies prevails due to the availability of both OTC and Prescription Only medicines from dispensaries, pharmacy and even the local stores without prescription.

On the other hand the propensity of entering the proper medical management system becomes less likely owing to factors such as economical strain, inadequate access to medical facilities and lack of awareness. The practitioners of self medication are habitual of drug use without proper diagnosis and tend to store medicines in their homes and handbags for ready availability. The relevant awareness about the significance of responsible disposing of left over medicines or discontinued regimens lacks in the general population and hence the left over antibiotics are commonly used by self medication when symptoms of chronic infections (e.g. gingivitis, tonsillitis etc.) arise.

Similar studies have shown that irrational treatment due to self medication may be associated with inappropriate dosing, unwanted drug interactions and incomplete or prolonged regimens of antimicrobials leading to the emergence of resistance in the general population, taxing the therapeutic efficacy of antibiotics and surfacing more complicated infections.<sup>3,4</sup> WHO has recommended twelve core interventions to contain this intricate scenario.<sup>5</sup>

## METHODOLOGY

A descriptive cross-sectional and self administered study was conducted on a sample size of female teachers and students (N=864) comprising of the age group 18-28, in two private sector general universities. A pretested questionnaire, containing open-ended and close-ended questions regarding treatment practice in nine common clinical conditions, was administered to the subjects to be filled anonymously. This was

Table-I: Prevalence of Self Medication in Common Disease Conditions.

Disease/Clinical condition	Self Medication %	Prescription by Doctor %
Headache	96.52	3.48
Fever	80.00	20.00
Gastro intestinal infections	61.30	38.70
Menstrual Pain	73.91	26.09
Respiratory Infection	41.30	58.70
Flu / Allergy	72.61	27.39
Cough and Cold	71.30	28.70
Minor Cuts / Wounds	85.00	15.00
Anemia/Fatigue/General weakness	54.57	45.43

following the informed consent of the participants who were aware of the purpose of the study. The questionnaire was pretested and was devised from similar studies. It comprised of demographic detail, queries regarding treatment for nine disease conditions, preference for type of treatment strategy in each case and plot of relative attitude. Data was analyzed using SPSS version 19.

## RESULTS

The nine common clinical conditions and the relative treatment strategies are shown in Table-I. The appropriate use of medicine after Prescription by doctors is relatively more in Respiratory infections (58.70%), Anemia and fatigue (45.43%) & GI infections (38.70%). The use of medicine without medical consultation is most common in Headache (96.52%), Minor cuts and wounds (85%) and Fever (80%). Relative tendency of self medication in all nine conditions in comparison is shown in Fig.1. The medicines used for the treatment with the relative frequency of use based on self medication or prescription by doctor is listed in Table-II. The pattern of total consumption of the medicines by rational and irrational use is shown in Fig.2; Self

Table-II: Total use of medicine with individual frequency of self medication.

Medicines in use	Total	Self Medication	Prescription by Doctor
	%	%	%
Metronidazole	73	49	24
Amoxicillin Clavulanate	50	21	29
Cefixime	20	10	10
Erythromycin	12	5	7
Diloxanide plus metronidazole	10	5	5
Clarithromycin	8	2	6
Ciprofloxacin	6	3	3
Cefuroxime	4	1	3
Polymyxin B, Bacitracin	63	55	8
Acetaminophen	46	41	5
Chlorpheniramine, Pholcodine	38	27	11
Paracetamol, Dextromethorphan	30	23	7
Diclofenac Na	28	24	4
Hyoscine, Paracetamol	25	20	5
Diphenhydramine	24	17	7
Phenylamine Maleate	21	13	8
Mefenamic Acid	18	16	2
Silver sulfadiazine	17	14	3
Fexofenadine	14	13	1
Acetyl salicylic acid	13	12	1
Paracetamol plus caffeine	12	9	3
Paracetamol, Triprolidine HCl	12	9	3
Chlorphenamine maleate	12	10	2
Euflavine 0.1gm w/w	9	7	2
Vitamin mineral complex A	33	17	16
Energy Food Supplement	25	14	11
Vitamin mineral complex B	17	11	6
Vitamin mineral complex C	13	8	5

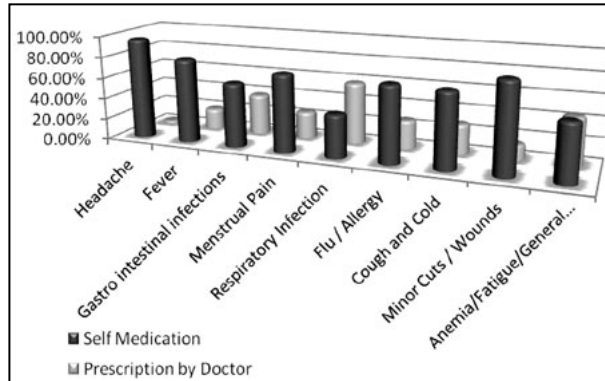


Fig.1: Relative treatment strategies in each clinical condition.

medication is comparatively less with antibiotics and more with the medicines used for minor injuries. (e.g. Euflavine for burns and polymyxin B and bacitracin in minor cuts).

## DISCUSSION

The tendency and relative frequency of irrational drug use varies in the different clinical conditions. Headache is treated to be a trivial problem and majority of the people (96.52%) tend to self medicate in it. Various studies have shown that the use of analgesics can delay the diagnosis of complicated diseases for which headache are a marking symptom<sup>6,7</sup> (e.g. migraine, tumors etc.). The most common medicine used for headache by self medication is Acetaminophen (41%). The common reasons for the use of this medicine as such is due to the OTC availability of the drug and the common knowledge of its indications. However, some participants have reported the use of Acetaminophen/ Paracetamol plus caffeine on daily basis to alleviate the symptoms of fatigue and lethargy along with dull constant headache that might hinder their studies and daily routine. It is a rather alarming situation that paracetamol (Acetaminophen) is used to “refresh” probably like a cup of tea, defining its irrational use to a greater extent and augmenting the associated hazard, as it can impart serious adverse effects with irrational use and remains to be the major cause of severe acute hepatotoxicity.<sup>8,9</sup> The participants in our study found the advertisements on print and electronic media to be a source of encouragement for self medication with OTC preparations for headache besides cough, cold and fever.

The propensity of self medication in cough and cold is observed in 71.30% of the participants. The use of these preparations in cough is sometimes in combination with many folk remedies. The appropriate use of OTC cough syrups (and other OTC medicines) as per directives for chronic or recurrent

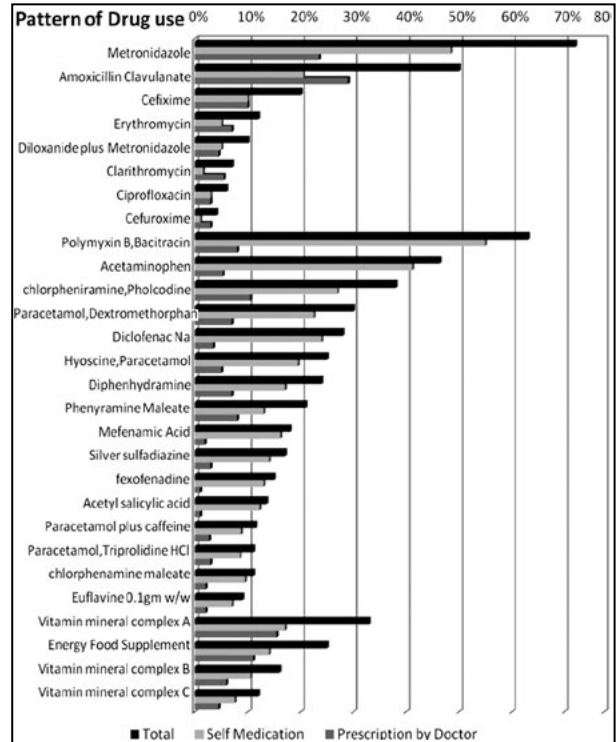


Fig.2: Relative plot of total drug use with treatment strategies

cough (and other valid indications) following initial diagnosis is an example of responsible self medication<sup>10</sup> and contributes to better health status overall. This study however reveals a dire situation that a misuse of cough and cold medication is seen in few participants of this study, the most reported is the use of cold syrups and antihistamines (e.g. dextromethorphan, diphenhydramine or chlorphenamine) for the induction of sleep in an addictive manner, even though insomnia had not been clinically diagnosed in them. A greater abuse potential of cough and cold medications is reported in various studies.<sup>11-13</sup> The toxicity due to self medication with cough syrups is an increasing area of concern<sup>14</sup> i.e. over dosage of diphenhydramine HCl can lead to toxic psychosis.<sup>15</sup>

Self medication for the management of menstrual pain prevails in 73.91% of the participants. The most commonly used drugs are acetaminophen (41%), mefenamic acid (16%), and hyoscine (20%). Acetaminophen is reported in previous studies to be the most common drug used by self medication for the management of dysmenorrhea.<sup>16,17</sup> Many participants in this study have reported no use of medicines in menstrual pain which indicates awareness and sensible conduct with medicines such as NSAIDs, which are suspected to cause infertility in females with potential risk, and hence their use is discouraged in women of child bearing age.<sup>18,19</sup>

Previous studies show that the irrational prescribing and irrational use of antibiotics in Pakistan has led to the emergence of resistant strains<sup>20,21</sup> however, this study indicate that self medication with antibiotics is to a less degree as compared to self medication with the OTC medicines. The most frequently used antibiotic by self medication is metronidazole (49%) and Ciprofloxacin (3%) in GI infection and amoxicillin plus clavulanate (21%) in throat infections. Comparatively less use of antibiotics may be due to the knowledge of their toxicity, on the other hand, the high cost of these medicines and less general awareness about their indications may also be liable factors. Low adherence levels are seen, which is an usual phenomenon in cases of self medication with antibiotics, many patients take antibiotics in under-dose or for shortened duration - 3 instead of 5 days<sup>22</sup>.

Vitamin and mineral supplements are used up to (54%) by self medication in chronic fatigue syndromes, anemia, lethargy and strangely even in weight loss as reported by few during our study. They are generally believed to be safe and are used for chronic time periods. Whereas, over dosage and misuse of vitamins is reported to cause toxicities and complications.<sup>23,24</sup>

Rational self medication practice is seen for the management of minor cuts, wounds and burns (85%). The participants have sufficient knowledge about primary care in such clinical conditions, which depicts sound healthcare practice and less degree of dependency. The minor accidents may not get complicated if prompt treatment is provided which will discourage bacterial infections and would heal easily. The knowledge of first aid and emergency conditions is requisite for the fitness of families e.g. prompt and appropriate self medication in minor cuts and burns is essential. Most of the participants of the study were able to identify the medicines and their related indications from brand names. This affirms their relative awareness about the medicines and their use and gives a notion of self medication practice in effect on a large scale.

### CONCLUSION

Irrational drug use due to prevalence of a great degree of self medication among the educated female component indicates that even a greater degree of malpractice may prevail in the rest of the population. At the same time, responsible self medication depicts the independence and capability to cope with otherwise critical clinical conditions. Valid pharmacovigilance studies can define the extent

of rational and irrational self medication and report the risks and benefits of the ratio. To minimize the implication of any drug induced hazard, the twelve core interventions proposed by WHO for rational drug use should be implemented and standardized.

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### Authors Contribution:

**Ms. Nusrat Bano:** Conception and design of the study, acquisition of data and analysis and interpretation of the data.

**Prof. Dr. Rahela Najam:** Supervision of the research, Interpretation of findings and final approval of the research.

**Ms. Faaiza Qazi:** Critical revision for important intellectual content, Interpretation of findings and assessment of data.