

## ASSESSMENT OF PRESCRIBING PRACTICES OF PRIVATE GP'S IN ISLAMABAD

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## ABSTRACT

The study was conducted to assess the prescribing practices of GP in Islamabad. The purpose of this study is to measure the performance of health care providers related to appropriate use of drugs. These indicators basically base on clinical encounters taking place on at outpatient health facilities for the treatment of disease. For the purpose of this descriptive quantitative study data from a non-probability sample of 200 patients, 10 patients from each GP, was collected, coded, and analyzed by SPSS. We have done main focus on two major prescribing indicators i.e polypharmacy and misuse of antibiotics. Results showed that prescribers are free to prescribe the drugs of their choice either they comply with the national policies or not this causes a burden on health system. Standard prescription layout is not being followed even by a single prescriber. There is no check point for the prescriptions standard. Directions for the pharmacist or dispensers are not present even in a single prescription this ignorance may leads to adverse drug reactions.

**Keywords:** Polypharmacy, Antibiotics, WHO, Rational drug use.

## INTRODUCTION

According to the World Health Organization (WHO), 'the rational use of drugs demands that the appropriate drug be prescribed; that it be available at the right time at a price people can afford, that it be dispensed correctly; and that it be taken in the right dose at the right intervals and for the right length of time. The appropriate drug must be effective, and of acceptable quality and safety [1]. The concept of rational drug use is age old, as evident by the statement made by the Alexandrian physician Herophilus 300B.C. that is medicines are nothing but very hands of GOD if employed with reason and prudence [2]. Rational use of drug depends on many activities such as making the correct diagnosis and prescribing the appropriate drugs in correct doses. Reports on drug prescription from developing countries like Pakistan and India indicate the general pattern of polypharmacy, misuse of antibiotics, injectibles, frequent use of multivitamins, wrong medication and inappropriate treatment is common in GP's practice [3]. General Private Practitioner is the most sought out healthcare provider [4]. The services of the private sector are perceived to be far better than the public sector in most developing as well as developed nations [5]. The extent of drug use is directly affected by prescribing behavior of physicians, especially in primary care [6]. According to the most recent report on the world drug situation, it has been identified that medicines are prescribed and dispensed inappropriately, and that patients fail to take their medicine correctly [7]. The prevailing problems related to inappropriate use by providers and patients are widespread and it is costly and extremely injurious to personal and public health goods [8]. Common patterns of irrational prescribing, may, therefore be manifested in different forms, the use of drugs when no drug therapy is indicated, e.g., antibiotics for viral upper respiratory infections, the use of the wrong drug for a specific condition requiring drug therapy, e.g., tetracycline in childhood diarrhea requiring ORS, the use of drugs with doubtful/unproven efficacy, e.g., the use of anti-motility agents in acute diarrhea, the use of drugs of uncertain safety status, e.g., use of dipyrone, failure to provide available, safe, and effective drugs, e.g., failure to vaccinate against measles or tetanus, failure to prescribe ORS for acute diarrhea, the use of correct drugs with incorrect administration, dosages, and duration, e.g., the use of IV metronidazole when suppositories or oral formulations would be appropriate [9]. The use of unnecessarily expensive drugs, e.g. the use of a third generation, broad spectrum antimicrobial when a first-line, narrow spectrum, agent is indicated [10].

The problem of inappropriate drug use is multi-faceted, its seriousness is difficult to summarize in a single statistic [11]. In

countries at all income levels, common examples of irrational drug use are too many medicines are prescribed per patient (polypharmacy), injections are often used where oral formulations would be more appropriate, antimicrobial medicines are often prescribed in inadequate doses or duration, and are widely prescribed for non-bacterial infections, thus contributing to growing problems with resistance, failure to prescribe in accordance with clinical guidelines, patients self-medicate inappropriately, or do not adhere to prescribed treatment [12].

There is concern regarding the irrational prescription and use of drugs in Pakistan. This study aimed to describe the quality of prescriptions by private general medical practitioners, including both the layout of the prescription and the type and number of drugs prescribed using standard methodology for selected drug use indicators developed by WHO and INRUD.

## METHODS

## Study Design

It was a descriptive quantitative study conducted in urban areas of Islamabad during the months of March and April 2009, in GP's clinics.

## Sample Size

The study was carried out by collecting the data from 20 GP's practicing in Islamabad and 10 cases from each GP were observed.

## Tool development

Two tools were developed to collect data one was the structured observation form and the other was the prescribing indicator form. The structured observation form was used to observe the standard prescriber-patient interaction while examining the patients whereas prescribing indicator form was used to document the parts of prescription to assess either the prescriptions follow the standard prescription format or not and also prescribing core indicators by WHO to investigate rationale the drug use in private clinics. These tools were selected on the basis of their proved effectiveness in previously conducted studies. The structured observation form was consisted mainly of two parts one was comprised of general demographics including patient name, age, sex and name of prescriber. The part was of required information to observe prescriber-patient interaction. A standard patient-prescriber interaction scale was developed with a score ranging from 0-27 and comprising of four subscales. Subscale one was introduction consisting of four items with a score ranging from 0-4. subscale two

was history taking having five items with a score ranging from 0-5. Third subscale was of diagnostic procedures with five items having score ranging from 0-5 and the last subscale was patient counseling comprising of 12 items with a score ranging from 0-12. Consultation time was also noted. Another scale of the structured observation form was to observe the timings at which the prescribers started to write drugs on prescriptions and having score ranging from 0-1.

The other tool was prescribing indicator form having two main parts one was consisted of WHO core indicators and other was of standard prescription format. The standard prescription format scale was developed with nine subscales with scores ranging from 0-9. Prescription lay out was also observed to assess that how much prescriptions follow standard prescription pattern and contains all the eight parts of prescription as mentioned in the literature [13].

**Tool Validation**

The tools were developed by inputs from focused group discussions and validated for face and content validation. The face validation was done by panel of experts which includes academic researchers and prescribers whereas content validation was done by focused group discussions and pilot testing.

**Data Collection Planning**

After tool validation field visits were conducted to collect data. For the purpose of data collection a team of two data collectors worked. The sampling units were located and permissions had been taken by the GP's supervising those clinics. To follow the ethical criteria only those GP's were included who were willing. Confidentiality approval was given to them that their personal information will not be disclosed. After data collection we maintained the data in files on completion of field visit the data was coded to enter in the SPSS (statistical package for social sciences) software. SPSS17.0 version was used for data entry and analysis.

**Data Analysis**

After coding the data was entered in SPSS for analysis. Data screening was done by running frequencies. After performing the statistical analysis it was found that our data was skewed so non parametric tests, Spearman's test was applied to find the correlation between patient-prescriber interaction and prescription pattern, patient-prescriber interaction and consultation time and patient age on consultation time. Mann-Whitney test was also applied to check effect of patient gender on consultation time and patient-prescriber interaction. Then the obtained results were recorded.

**RESULTS**

For the purpose of this descriptive quantitative study data from a non-probability sample of 200 patients, 10 patients from each GP, was collected, coded, and analyzed by SPSS.

The 85% GP's clinics were located in the main markets and 15% in small markets. All the GP's working visited were male among them only one was female. 75% prescribers have working experience in their field of more than 10 years and 95% were holding other degrees in addition to MBBS. 35% of them were working from 5-10 pm and 65% from 7pm-1am. Another observation was about their consultation fee excluding the cost of drugs. On analysis it was found that GP's were charging Rs 100 to Rs 600. 200 patients were observed out of which 48% were male and 52% were female with the age ranging from 1-82 years having different health related issues.

**Prescribing Indicators**

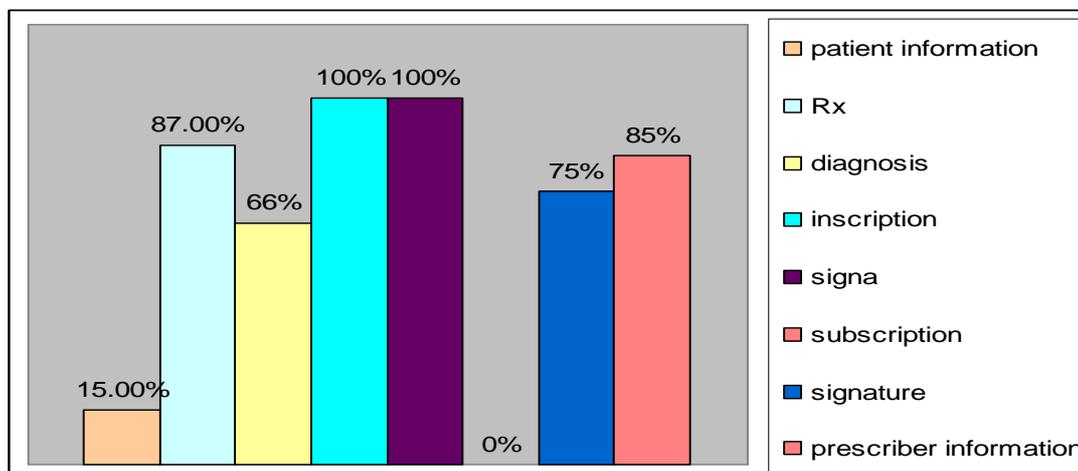
Prescriptions of 200 patients were observed to investigate the WHO core prescribing indicators that were; the average number of drugs prescribed per encounter, average consultation time, percentage of drugs prescribed by generic name, percentage of encounters with antibiotic prescribed, percentage of encounters with injection prescribed, percentage of drugs prescribed from EDL. The results found were:

Indicators	Count	Mean	±S.D	Minimum	Maximum
Average number of drugs per encounter	200	±3.04	1.41	1	7
Average consultation time	200	±5.02 min	2.97	1	21
% of drugs prescribed by generic names	607	0	0	0	0
% of encounters with antibiotics prescribed	200	37%	0.48	0	1
% of encounters with injectibles prescribed	200	17.5%	0.38	0	1
% of drugs prescribed from EDL	607	39.5%	1.13	0	6
% of antibiotics prescribed	607	13%	5.3	0	2
% of injectibles prescribed	607	8.4%	5.9	0	3

**Prescription Pattern**

Prescription pattern was also observed to investigate how many prescribers follow standard prescription pattern. The prescription

pattern scale was developed with score from 0-8, with the mean results obtained 5.21(range 3-7, SD± 1.02). Prescription pattern was observed to have all eight parts of prescription. The results obtained are given below:



**Patient-prescriber interaction**

A standard patient-prescriber interaction scale was developed having 26 items with 4 subscales.

Subscale one was introduction consisted of 4 items with a score ranging from 0-4.the mean score obtained were 2.43 (range: 0-4, SD ± 0.95).

S. No.	Sub scales	Items	Response N (%)
1	Introduction	Prescribers greets patients	38(19%)
		Friendly conversation	100(50%)
		Encouraged to describe problem	169(84.5%)
		Prescribers listened to patients carefully	179(89.5%)

Second subscale was history taking having 5 items with score 0-5 and the mean score obtained 2.11 (range0-5, SD ±1.34)

S. No.	Subscale	Items	Response N (%)
2	History taking	Prescribers asked for chief complaints	175(87.5%)
		Prescriber asked duration of current problem	109(54.5%)
		Ever experienced this condition before	28(14%)
		Taking any drugs	63(31.5%)
		Name of drugs	48(24%)

Third subscale was use of diagnostic procedure with 5 items having score from 0-5 with the mean results 2.28(range0-5, SD±1.05).

S. No.	Subscale	Items	Response N (%)
3	Diagnostic Techniques	Temperature measured	75(37.5%)
		Patient touched for fever	30(15%)
		Pulse felt	64(32%)
		B.P measured	128(64%)
		Other diagnostic techniques	159(79.5%)

The fourth scale was patient counseling comprising of 12 items with score ranging from 0-12 and the mean score obtained was 4.54 (range0-10, SD±2.42).

S. No.	Subscale	Items	Response N (%)
4	Patient Counseling	Explained patient about disease	93(46.5%)
		Prescriber told patient how to take medication	133(66.5%)
		Prescriber told patient about doses	88(44%)
		Prescriber told patient about frequency	119(59.5%)
		Prescriber told patient the duration of therapy	54(27%)
		Diet counseling	110(55%)
		Prescriber told patient about side effects	2(1%)
		Prescriber listens to responses	88(44%)
		Patients satisfied	172(86%)
		Patients called for follow up	42(21%)
		Prescribers end conversation abruptly	86(43%)
		Prescribers reassured the patients understanding	10(5%)

**DISCUSSION**

A general practitioner or GP is a medical practitioner who provides primary care and specializes in family medicine. A general practitioner treats acute and chronic illnesses and provides preventive care and health education for all ages and both sexes. They have particular skills in treating people with multiple health issues and co-morbidities [14]. There is concern regarding the irrational production, prescription and use of drugs in Pakistan [15]. To assess the quality of prescriptions by medical practitioners, including both the layout of the prescription and the type and number of drugs prescribed, a sample of 20 health facilities (GPs clinics) with 10 patients from each clinic was selected. 20 health facilities were selected to represent a larger group of facilities [16]. The aim of this study was to describe the prescribing behavior of physicians in urban areas of Islamabad, Pakistan. Our focus was not on whether the drugs were indicated for the patient's illness, but on the layout and content of the prescription. In particular, we wished to assess the extent of polypharmacy, overuse of injectibles and antibiotics which put a huge burden on health system in terms of cost and to estimate the extent of drugs prescribed by their generics

and also from the EDL to assess the extent to which the prescribers follow the national health policies. 200 patients were observed out of which 52% were females and 48% were male. A study from Pakistan indicated 56% females and 44% were males [16]. This gender difference could be because of the fact that females in our country have poor diet habits so they are more prone to diseases. Among the clinics selected for data collection 85% of the clinics were located in the main markets and only 15% were located in small markets.

The number of clinics in the main markets may be higher because of different reasons one of them can be that it's easy for patients to approach both the prescriber's clinic and the drug stores in the same market with less effort and in less time period. It may also be because of the reason that clinics in the main markets are more facilitated and may have laboratories nearby to reduce the cost of travelling. And among the GPs practicing in those clinics 95% were male and only 5% were female. This may be due to the fact that there is generally a lesser trend of female doctors in Pakistan, especially those working as GP or may be because of gender difference they avoid to interact with male patients. It is seen that

most research studies carried out in the world include male prescribers [17]. GPs having working experience less than 5 years were found to be 25% whereas remaining 75% have more than 5 years working experience. One of the reasons for this difference can be that the patients trust the experienced GPs more as compared to new talent. The working hours were found to be from 5pm-10pm for 35% prescribers and 7pm-1am for 65% prescribers. Patient and prescribers factors both contribute to this result. Because patients may feel more comfortable to visit the prescribers in the evening because of heavy workload in the day time or it might be possible that they are avoiding the sunny hours to get out of their houses because of this reason prescribers prefer to open the clinics late in the evening. Prescriber's factor that can contribute here is that they may also be working in morning hours so they prefer to take rest for a somewhat longer period of time before going on evening shift. Prescriber's consultation fee is also an important parameter to assess their practices because it has been observed that the prescribers charging more consultation fee spend more time with patients and provide better care. Our results showed that GPs in urban areas of Islamabad were charging consultation fee 100-600 excluding the cost of drugs. Polypharmacy was the norm, with 82% of prescriptions having more than one medicine, with a significant proportion of patients receiving 3 or more preparations. The average number of drugs was found to be  $\pm 3.04$ . Other studies also shows almost the same results like in a study from Pakistan showed average number of drugs prescribed per patient was  $\pm 3.5$  [18]. When the reason for prescribing more drugs for the same condition was asked by prescribers they said that in some situations it is needed but in mostly we prescribe more number of drugs to satisfy the patients. Another study from Pakistan showed the average number of drugs prescribed 2.77 [16]. In one study carried out with private practitioners in Sind the average number was 4.5, much higher than ours [19]. In district Attock the average was the 2.7 [20] whereas in a teaching hospital in Rawalpindi the average was 2.9 [21]. In Bangladesh the mean number is 1.4 and in Nepal it is 2.1 where as in Nigeria it is 3.8 [22]. These figures do suggest that the number of drugs per prescription is much higher in Pakistan. The percentage of prescriptions containing one or more antibiotics was 37%. Other regional and national studies have shown a range of 25 to 58 percent [23, 24, and 25]. This variation might be because of the differences in disease pattern and socioeconomic status in different regions. Similarly injection use is also quite high (17.5%) considering that we only considered outpatient prescriptions in our survey. A study from Pakistan including all four provinces of Pakistan showed injectibles use 15% and Punjab being showing significantly higher percentage [16]. Private practitioners are more frequent users of injection compare to other health care providers [19]. However the use of injections in Pakistan is very high when compared with the region as in Nepal it is only 5% [26]. Percentage of drugs prescribed by generic is 0% which shows that in Islamabad there is no trend to prescribe drugs by their generic names. On average more than 60% of the medications were prescribed by generic name for the 26 countries that reported this indicator. Pakistan, India, Uzbekistan, and Namibia showed less than 50% of the medications prescribed as generics [27]. Another study from Nigeria showed 49.5% of medications prescribed by generic [28]. This difference may be because of the fact that these studies included both governmental as well as private practitioners but our study is just related to private practitioners. Private practitioners usually prescribe costly medications because most of the times our patients feel that as much as the cost is the medication is that much effective. Another factor that can contribute here is that people with high income usually prefer to visit the private practitioners that's why prescribers don't hesitate to write the costly medications for them. Our results showed drugs prescribed from national essential drugs list 39.5% as compared to most of the other studies done to assess this indicator. Namibia shows 68% of the drugs prescribed as generics. Another study shows 65% of drugs prescribed as generics in Pakistan [29]. There is a huge difference in results of the studies mentioned here and our study, the factor responsible for this difference could be the same as for the drugs prescribed by generic but another factor which can contribute here is that as in our country the private general practitioners are not answerable to anyone so they feel free to prescribe any drug either their

prescriptions follow the national strategies or not. The average consultation time found is about 5 minutes which is quiet better than the results from other studies. Other studies in Pakistan also concluded the mean time of 2 to 2.3 minutes of interaction between doctor and patient [20, 30]. The study by Siddique et al compared consultations between private and public sector, both were inadequate but private sector was a little better in this respect. The regional studies in Bangladesh and Nepal show the average consultation time to be between 1 to 3 minutes [26].

This study highlighted the presence of severe deficiencies in the layout of a significant proportion of prescriptions. Not a single prescription was according to the standard layout. Subscription was found to be 0% which showed that not a single prescriber was giving instructions to pharmacists or the dispenser. As the selected clinics were non-dispensing clinics this could be reason for the absence of such instructions. A study from Goa, India showed a lesser number of prescriptions with this significant part [17]. 15% of prescriptions were had proper patient information whereas remaining were not contained the complete information. The reason behind this is that there is no trend to tell the complete address to prescribers in Pakistan because patients thought that if they are living in an established area or a high class locality the prescriber will charge more consultation fee of they might be afraid of theft while telling their address. Most of the prescribers do not ask the age of patients when we asked the reason for this they said that females are usually reluctant to tell their age they mind it and in most of the cases we guess their age by their physic and behavior. 87% prescriptions had the symbol of superscription this is quiet a good percentage and the reason of this could be that it's habitual to put this symbol before start writing the prescription. The percentage of prescriptions having any diagnosis (major symptoms or provisional or specific diagnosis) was 66%, however accuracy of the diagnosis was not inquired. A study from Pakistan shows 70% of prescriptions with diagnosis [16]. This may be because the prescribers are usually in hurry because of heavy workload because it was observed by our data collectors that the prescribers having less workload and spending more time with patients were writing diagnosis. Prescribers may also ignore this part to avoid the patient's questions. Only inscription and signa were 100% and this may be to reduce the queries from patients and also for patient's proper understanding. Only 85% prescriptions had prescribers' complete information and only 75% prescriptions had signatures of the prescriber. And few of them don't have their prescription writing pads they were using rough papers for this purpose. Patient prescriber interaction scale resulted with mean score 11.3. It was found that prescribers having better interaction have better prescription layout, giving more consultation time, prescribing more injectibles, charging more consultation fee and are more experienced. Whereas another study from the Attock district indicated deficiencies in prescription practices among all health care providers however the problem is extremely serious among the more qualified general practitioners.

## CONCLUSION

Generic prescribing is found to be 0% in this region and injectibles and antibiotic use is higher. Consultation time is very less. Money and prescriber experience affects the prescribing behavior. Prescribers are free to prescribe the drugs of their choice either they comply with the national policies or not this causes a burden on health system. Standard prescription layout is not being followed even by a single prescriber. There is no check point for the prescriptions standard. Directions for the pharmacist or dispensers are not present even in a single prescription this ignorance may leads to adverse drug reactions.

## LIMITATIONS

There were some limitations to our study. Firstly this study was carried out only in private sector the valuable data could also be gathered from public sector, is missing, to make comparison between public and private sector. Secondly this was done only in the GP's clinics, private hospitals were not included. Our sample size was also small and not according to the criteria set by the WHO this was because of shortage of time.

**RECOMMENDATIONS**

More research studies should be conducted to assess the prescribing practices of general practitioners in private sector and there should be a check on their prescriptions. Training programmes should be conducted to train the prescribers and to educate them about the importance of neglected parts of prescriptions. Seminars for the prescribers should be held to highlight the overuse of antibiotics and injectibles. Intervention surveys should also be conducted. Education programmes for public awareness should be conducted to create awareness about the overuse of injectibles and antibiotics patients should know what they are taking for their illness and what alternatives they have.

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