Original Research Article

Determinants of Increasing Trend of Self-Medication in a Pakistani Community

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Abstract

Purpose: To determine the major reasons, sources, diseases and drugs responsible for increasing trend of self-medication.
Method: A community-based cross-sectional survey was carried out in the district of Faisalabad in Pakistan. Respondents (1488) were classified on the basis of age, sex, education, lifestyle and their economical level. A questionnaire was distributed among the sample population to collect data.
Results: Majority of respondents involved in self-medication were aged between 15 and 20 years. Family members (N = 717, 48 %) were considered the major source of information for self-medicated drugs. Lack of time (N = 504, 37 %) while economic issues (N = 485, 33 %) were the major reasons for self-medication. Medical stores were the source of drug purchase by 1087 (73 %) respondents. Headache (N = 772, 52 %) and fever (N = 600, 40 %) were the main indications for self-medication while 694 respondents reported that they engage in single-dose self-medication. Paracetamol (N = 689, 46 %), other analgesics (N = 488, 33 %), non-steroidal anti-inflammatory (N = 680, 46 %) were reported to be used frequently for self-medication.
Conclusion: Self-medication is prevalent in the Pakistani community due to easy access to over the counter (OTC) and prescription-only medicines (POM). This may lead to untoward effects in consumers of the products. Special interventions by relevant regulatory agencies regarding the sale of the drugs are therefore required.

Keywords: Self-medication, OTC drugs, Pharmacist.

INTRODUCTION

Medication is the use of medicines for the treatment of pathological conditions. Appropriate therapeutic medication is only possible when there is a complete evaluation of symptoms by competent health practitioners followed by proper filling of the prescription by the pharmacist [1]. Among various means of medication, self-medication is the mostly used [2]. Self-medication can be defined as the self use of any pharmaceutical product for the treatment of any self-diagnosed experience and symptoms without consultation with a health provider [3,4]. In a majority of developing countries, self-medication is indulged in to treat a number of disease conditions [5, 6]. Pain killers, anti-histamines, cough-suppressants, analgesics, vitamins and energy providing tonics are usually considered as non-toxic or risk-free and are

easily available in pharmacies as over-the-counter (OTC) drugs but their extensive use can cause serious adverse effects [7,8].

Various factors such as lack of knowledge, expensive health care services, extensive publicity of drugs, deficiency of health oriented services and emergency conditions are responsible for self-medication [9]. The act of self-medication not only hinders the usual process of diagnosis but also delays therapeutic treatment and produces a number of untoward effects [10]. However, self-medication also has its own benefits such as savings in time, money and other resources [11]. World Health Organization (WHO) favors self-medication for rapid relief of indications only when health care services are inaccessible to public in certain areas of a country [12].

The primary aim of the present study was to determine the common factors (age, sex, gender, education level, economical level, sources, distance, advertisement, cost and diseases) and reasons for self-medication in Faisalabad District Punjab Province, Pakistan.

METHODS

Study area and design

A community based cross sectional survey was conducted in Faisalabad (Punjab, Pakistan) formerly known as Lyallpur. It is the second largest district of Punjab, after Lahore and is situated at the center of the province. This district was selected for the study because it has hospitals, universities, medical colleges and industrial firms. The respondents (1488) were classified on the basis of age, sex, education, lifestyle and their economical level.

Study instrument

A randomized, cross-sectional questionnaire-based survey was conducted in this study. A well-structured questionnaire containing > 50 questions was distributed randomly across the study population to evaluate emerging trends in self-medication. The questionnaire demographic items such as age, sex and education level, number of attempts for self-medication,

frequency of self-medication, dose, major sources of drugs for self-medication, brand or symptom-based purchase of drugs for self-medication and physicians' responses regarding self-medication. In addition, reasons, indications for self-medication, and cost of self-medication were also recorded. Sources used for publicity of the drugs were noted for their contribution to promotion of self-medication. The data were collected via visits to physicians' offices, hospitals, and other healthcare units.

Data analysis

It was a descriptive survey and data are presented as frequency. The management and statistical analysis of collected data were done by using SPSS Version 11. Chi Square test of significance was applied where applicable to determine association amongst variables. $P < 0.05$ was considered statistically significant.

RESULTS

The demographic profile of the respondents is presented in Tables 1 and 2. The total number of respondents was 1488, out of which 893 (60 %) were females. Most of the respondents fell in the age group of < 25 years, i.e., 702 (48 %) and 751 (50 %) respondents have university level education and were found to be involved in practices of self-medication. Respondents with University level education showed more self-medication practice than respondents with school level education (N = 751 vs N = 225, $p < 0.05$). Individuals (23 %) with monthly income between 10 - 20 thousand rupees (US$116 - 232) were involved in self-medication with the use of allopathic treatment as a preferred treatment.

The results indicate that 667 (45 %) respondents reported that once a day (OD) dose was sufficient for treatment of symptoms and 40 % respondents used to take medicines just for one day only (Figure 1). Distance (km) from clinics/hospitals influenced the decision to initiate and continue self-medication. Time taken by physician to attend to a patient was 2 – 5 min, and time spent at the physician's office was stated by 510 (34 %) persons as a reason to opt for self treatment rather than spend money and

Table 1: Gender, age and qualification of those involved in self-medication

	Profile								
Freq	**Gender**		**Age (years)**				**Qualification**		
	Male	*Female*	*<25*	*25-35*	*35-45*	*>45*	*School*	*College*	*University*
N	587	893	702	361	193	232	225	422	751
%	40	60	48	24	13	15	16	29	50

Table 2: Economical status and preferred treatment

Freq	Profile							
	Economic status ('000)					*Qualification*		
	5-10	*10-20*	*20-30*	*30-40*	*Others*	*Allopathic*	*Homeopathic*	*Ayurverdic*
N	340	344	269	225	310	1194	182	112
%	23	23	18	15	21	80	12	8

more time to visit health care practitioners (Table 3).

36% respondents reported that their physicians ignored (did not listen to patient about his/her self-medications) while 35 % reported that physician don't support this practice of self-medication. There were no significant differences in the proportion of doctors who support, do not support or ignore the practice of self-medication when they were informed by their patients of their self medication behavior ($p > 0.05$).

Medical stores were the preferred place to purchase medicines without prescription and 1100 (74 %) respondents preferred purchase branded medicines. The study also revealed that people purchased medicines by describing symptoms of disease. The proportion of the patients (N = 1100) who purchased medicines by telling brand names to retailer was significantly higher than the proportion of patients (N = 328) purchasing medicines by telling their symptoms ($p < 0.05$) (Table 4). Only 419 (28.15 %) respondents were satisfied with counseling by physicians while 274 (18.4 %) were satisfied with the time given them by physicians.

Family members and friends were considered as major sources involved in the provision of the information regarding self-medicated drugs. However, more respondents considered friends as source of information for self-medication purpose than family members or other sources of information ($p = 0.012$) (Table 5). The study also revealed that respondents utilized previous prescriptions (self and others), internet and advertisement to select and purchase medicines for self-medication purpose. The study revealed different factors such as economical issues 485 (33 %), lack of time 507 (34 %) and lack of trust on physician 214 (14 %) as major reasons for adapting self-medication practices by public. A strong association of frequency of self-medication practice with economical status of the patients ($p = 0.0024$) and with time given by physicians to patients have been observed ($p < 0.05$).

(Table 5). The minor reasons for following this practice were found to be reluctance to follow course/advice and length of therapy. Indications with respect to the self-medications were noted by 1488 respondents as fever 600 (40 %), headache 772 (52 %) and diarrhea 367 (25 %) (Table 5). Fever, weakness, dryness of the mouth, blurred vision, cough, dizziness, muscle cramps, nausea and vomiting were the common adverse effects reported by 96 (18 %), 108 (20 %), 66 (12 %), 63 (11 %), 29 (5 %), 59 (11 %), 25 (7%), 88 (16%) respondents respectively out of 1488 persons (Figure 2); 493 respondents considered marketing personnel as promoting factor for this trend and 377 respondents answered positively that retailers also support this act of self-medication.

Table 3: Dose frequency, duration of self-medication, distance of residence from clinic or hospital and counseling time by physicians

Frequency of SM	No. of persons	%
OD	667	45
BID	441	30
TID	129	9
QID	41	3
SOS	210	14
Duration (days)		
1	603	41
2	395	27
3	260	17
4	54	4
5	55	4
More	221	8
Distance from hospital/clinic (Km)		
10	146	10
20	188	13
30	250	17
40	270	18
50	310	21
Time given by physicians (min)		
2 to 5	510	34
5 to 10	432	29
10 to 15	274	18
15 to 20	180	12
Other	92	6

SM = self-medication, OD = once a day, BD = two times a day   TD = three times a day, QID =four times a day SOS = when required

Drugs used with their brand names include paracetamol 689 (46 %), Augmentin 166 (11 %), Avil 85 (6 %), Ponston 399 (27 %), Mucain 55 (4 %), Incidol 19 (1 %), Flagyl 180 (12 %), Disprin 503 (34 %), Buscopan 84 (6 %) and Dicloran 98 (7 %). Drugs used by their generic names in the data by the respondents include acetaminophen

234 (16 %), diclofenac sodium 79 (5 %), diphenhydramine 16 (1 %), ibuprofen 227 (15 %), atenolol 8 (0.5 %), polymyxin 4 (0.5 %), metronidazole 7 (0.5 %) and paracetamol 30 (2 %). Moreover, drugs used for self-medication according to their pharmacological class include antibiotics 170 (12 %), analgesics 488 (33 %), muscle relaxants 53 (4 %), Antacid 33 (2 %) and non-steroidal anti-inflammatory 680 (46 %) drugs (Figure 1). Preferred age at which most of the respondents 1022 (68 %) started the practice of self-medication was recorded 15- 20 years and 835 (56 %) persons have been doing this practice from < 10 years to get rid of their unusual symptoms.

Some respondents (694) were not familiar with the concept of prescription only medicines (POM) and over the counter drugs (OTC), 799 respondents did not know that the self-medication of drug is prohibited and only 182 of the respondents were aware of these concepts.

DISCUSSION

Half (751) of the respondents have university level education and were involved in practices of self- medication with the use of allopathic treatment as a preferred treatment. There is no association between the level of education and self-medication practices in this study.

In the present study, the results showed that females indulged more in self-medication than males. This can be explained by the fact that many families in Pakistan prefer male children than females, so they seek medical advice for boys early without trial of self-medicated drugs without prescriptions. Sixty percent of the sampled female population was actively involved in self-medication. The most probable reasons behind this fact are the restricted role of female mostly as housewives in their homes which further create hindrances in their visits to hospitals/clinics and abolish all the opportunities to learn about any possible harmful consequences of such practices. Presence of economical problems and lack of education particularly for the females in the developing countries like Pakistan further support the probability of increased indulgence of females in the practices of self-medication. Similar types of findings with approximately similar proportion were observed in the study conducted by Worku and G/Mariam [13].

The highest proportion (68 %) of population involved in self-medication was in the age group of 15 – 20 years because this age group tries to hide minor etiologies or used to take some

famous brands or generics for their procurement without being aware of about the possible adverse effects of drugs to healthy life. The study of prevalence of self-medication in Nepal conducted by Shanker *et al* [14] also indicated

Table 4: Physician response and sources of Drugs used for Self-medication

Physician's response about SM	No. of Persons	%
Support	436	29
Non support	520	35
Ignore	532	36
SM drugs source		
Medical store	1087	73
Pharmacy	254	17
General store	127	09
Quakes	20	01
Purchased by telling		
Symptoms	328	26
Brands	1100	74

SM= Self-medication

Table 5: Reasons, Indications, Side effects and Source of information for self-medication

| Source of information	No. of Persons	%
Friends	717	48
Family	333	22
MRP	124	08
Previous prescription	228	15
Prescription	166	03
Retailer	099	07
Advertisement	121	08
Internet	053	04
Reasons of self-medication		
Economic issue	485	33
Lack of time	507	34
Lack of trust on physician	214	14
Reluctance to follow up	176	12
Length of therapy	202	14
Indications of self-medications		
Fever	600	40
Cough	221	15
Headache	772	52
Pain	340	23
Diaorhhea	102	07
Allergy	164	11
Flu	129	09
Infection	102	07
Side effects of self-medication		
Fever	096	07
Weakness	108	07
Dryness of mouth	066	05
Blurred vision	063	04
Cough	029	02
Dizziness	059	04
Muscle cramps	025	02
Nausea/Vomiting	088	06

MRP: Medical Representative
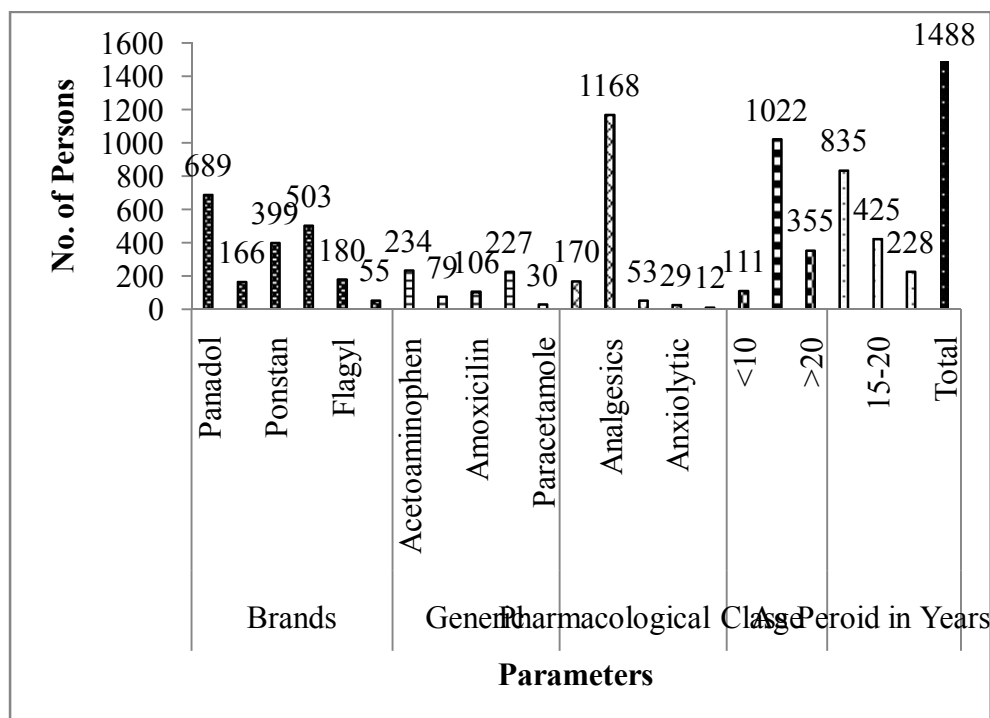
Figure 1: Age at which self-medication started, total period self-medication has been indulged in, brands, generics and pharmacological classes of drugs used for self-medication.

that younger population increasingly adopts self-medication practice. 50 % of the respondents in the study have admitted that they have done self-medication 10 times in their lives and 45 % of the respondents reported that once a day (OD) dose was sufficient for alleviation of symptoms due minor illnesses like pain, headache, diarrhea, allergic reactions, and seasonal problems etc. This fact reveals that younger population is quite unmindful about their health matters which are further supported by the evidence that 34 % of sampled population in this study do self-medication because of lack of time.

Most of respondents (23 %) having income level of US$116 - 232 per month were involved in self-medication. This study also expos the fact that lower earnings level of population pushing the society towards acceptance of more and more cheap methods of heath care services as noticed by WHO that self treat practice is a cheap alternative source for the people who can not afford fee of physicians [3]. In Pakistan, due to lower level of wedges and higher cost of health care services, it is very difficult to fulfill the basic needs along with medical facilities. The study conducted by Gupta *et al* addressed the similar kind of issues but with a little bit different findings due to socio-cultural differences of countries [15]. That is why 33% of sampled population of this study considered economical issues as major reason behind their self-medication practices. Almost 48 % of the respondents reported that

family members were the major providers of information regarding drugs used for self-medication purpose as shown in Table 5. In Pakistan, family members try to treat their minor ailments themselves and they administer same drugs for their family members to treat minor symptoms based on their past medical experiences. Anyhow the findings of this study are quite contrary to that of Lal *et al.* and this contradiction may be associated with cultural and geographical differences of study areas [16].

Majority of respondents (who practice self-medication) prefer allopathic system over homeopathic system because accessibility to allopathic medicines in this area is much easier as compared to homeopathic medicines due to presence of large numbers of private hospitals, clinics, pharmacies and small and large medical stores and super stores where the purchase of medicines without prescription remain a common practice. Similar findings were also reported in the work of Drugwale [17].

Most of the respondents (74 %) who practice self-medication purchase their medicines by telling brand names which could be attributed to easy to remember and more famous brand names of certain pharmaceutical companies. The study suggests a trend of self treatment instead of spending time in getting appointment from physicians for treatment and waiting for their turn in their offices. It is evident from the fact that a third of respondents in this study do self-

medication only because of lack of time. Majority of the respondents reported that distance from the health facilities also favor self-medication as founded in previous study of Kasilo *et al* [18]. A higher proper of respondents indulged in this practice because nearby clinic/hospital is at least more than fifty kilometers away from their residence. Public do not to like travel a longer distance for having health care services and prefer to purchase medicines of any pharmacological class from their nearby any medicines selling point. Similar findings have also been observed in the studies conducted by Yousef *et al* [1].

A large number of respondents reported that small medical stores remained a good place to obtain drugs for self-medication and it might be due to the presence of large number of medical stores, compared to pharmacies, with virtually no control on the sale of the drugs from government authorities. Almost all the drugs (national as well as multi-national brands & their alternatives) were available for sale without prescription and with or without price fluctuation.

Various factors that encourage patients to go for self-medication include lack of patients' reliability on medical practitioners as they do not go for complete patient evaluation within a short period of evaluation. More respondents reported that consultation time given by health provider for counseling was also a predisposing factor for self-medication. Most health practitioners try to cover a large number of patients as they can in the available time limit for which they do not give sufficient time and attention to each patient. Similar kind of study involving time as causative factor for self-medication was also conducted by Martins *et al* [19]. Socioeconomic factors, i.e., cost of medical treatment are also unaffordable for average person within their monthly income so they try to solve or treat their health issues themselves as shown in table 2 and Table 5 which has also been reported in the literature [20,21].

The most common diseases for which self-medication was practiced include; headache (52%), fever, diarrhoea and cough which may be due to atmospheric pollution, smoke of vehicles, allergies and poor sanitary conditions. Similar kind of study was conducted by Afolabi [22] and Worku and G/Mariam [13] in which they indicated the diseases common to man. Headache was the major indication for self-medication. The main cause of headache may be the stress created by different sources including lack of basic necessities of life economical problems, sanitary conditions and environmental pollution. The

results of Aljinovic-vucic *et al*. regarding headache as a major indication for which self-medication are supported by our findings [23].

Limitations of the study

The limitations of this study include its restriction to the population of Faisalabad and hence the results cannot be gernalized to the rest of Pakistan. Further studies incorporating other variables and a larger sample size would have been helpful. There is need for studies covering other areas of Pakistan before a definite policy is framed.

While this study is not generalizable because of the small sample size and lack of control, the results suggest a need for enlightening both patients and practitioners on the possible harmful effects of self-medicated medicine. Restriction on the sale of the drugs without prescription, improved attitude of physicians towards patients, reduction in consultation fees by physicians, institution of enlightenment programs on use of medicine by government, need to expand the role of pharmacists in hospital and community pharmacies and allotment of more counseling time to patients by physicians may help to reverse the increasing trend of self-medication.

CONCLUSION

Although it is difficult to monitor self-medication practices, interventions such as dissemination of information about potential problems in self-medicating would be helpful. Emphasis should be given to increased access to modern health facilities via reduced cost of medication, increased counseling time and better counseling attitude of physicians,. Future study should examine self-medication practices in other parts of Pakistan as well as undertake a more comprehensive analysis of factors that influence self-medication behavior.

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