

Full Length Research Paper

Prevalence of self-medication and health-seeking behavior in a developing country

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A randomized, cross-sectional, multi-center study in five cities of Pakistan was under taken amongst a sample of randomly selected urban and rural household to ascertain the health seeking behavior and self-medication by members of the community. Modern drugs were available in 64.2% of households, other drugs, 32.7% had no drugs and 4.1% no drugs. The common drugs available in the homes of urban areas were 66% analgesics as compared to 34% in urban areas ($p>0.001$), 38% antibiotics in rural as compared to 62% in urban areas ($p>0.001$), cough syrups 31% in rural as compared to 69% in urban areas ($p>0.001$) and oral rehydration salt was available in 52% of rural areas as compared to 48% in urban areas ($p>0.212$). In the rural area, there were 1.9 episodes of illness as compared to 2.3 episodes per household ($p>0.418$) in urban areas. Amongst the short duration of illnesses, the most common were 41.2% fever, 14.5% upper and lower respiratory infections, 8.4% gastroenteritis, 8.6% skin problems and 21.2% aches and pains. Most common chronic diseases were 24.1% diabetes mellitus, 25.8% hypertension, 9.3% hepatitis B and C and 7.0% cardiovascular problem. In rural areas, 28.4% drugs were acquired from Pharmacies as compared to 64.6% in urban areas ($p>0.001$), 14.2% from GPs by rural residents as compared to 23.4% of urban residents ($p>0.001$). Self-medication was reported in 15.7% of urban areas as compared to 8.3% of rural areas ($p>0.001$). The present study reveals that a large number of people are using medicines in urban and rural areas and difficult to stop self-medication. Educational interventions can improve “quality use of medicines” in developing country like Pakistan. Measures are needed to be taken to make health care delivery accessible at primary health care level.

Key words: Health-seeking behavior, self-medication, rural, urban, Pakistan.

INTRODUCTION

It had been reported that in many developing and under developed economically deprived countries most episodes of illness are treated by self-medication and is common practice due to quality concerns related to healthcare delivery systems as well as skepticism about the benefits of professional healthcare (Hussain et al., 2010). The major shortfall is the lack of clinical evaluation

of the condition by a trained medical professional, which could result in missed diagnosis and delays in appropriate treatments, Pakistan being no exception (Sobel, 2003; Figueiras et al., 2000). Self-medication and health seeking behavior pattern varies among different populations and are influenced by many factors like age, gender, education, family, society, law, availability of drugs, exposure to advertisements and nature of illness (Montastruc et al., 1997; Martins et al., 2002). It had been shown to be more common among people related to healthcare, such as doctors, nurses, pharmacists and students (McAuliffe et al., 1986, Vedranat et al., 2005).

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The potential for addiction is the main concern when self-prescribing is discussed (Rosvold and Tyssen, 2005). The nature and extent of self-medication varies in different cultural contexts, and social and educational influences may be greater than the influence of medical practice (Sharma et al., 2005). WHO is promoting practice of self-medication for effective and quick relief of symptoms without medical consultations and reduce burden on health care services, which are often understaffed and inaccessible in rural and remote areas (Tognoni and Bonati, 1986). In the industrialized world, self-medication with antimicrobials is very common and has been reported in many studies. In the United States, several studies indicate considerable use of leftovers (Richman et al., 2001, Ceaser and Wurtz, 2000), drugs obtained from a family member, a pharmacy, or a source outside the country (Vanden et al., 2003, Larson et al., 2003). There may be some positive aspects of self-medication when performed according to rational criteria (Borg and Scicluna, 2002). Nevertheless, in developing countries, self-medication usually leads to inadequate drug utilization patterns (Laporte, 1997) and is especially worrying when it involves specific diseases (e.g. diarrhoea or common cold) or prescription drugs such as antibiotics. The implementation of health-care schemes requires proper planning and it is important to understand the health-seeking behavior of the population. There is a growing literature on health-seeking behavior in the context of developing countries. However, there are few studies in Pakistan which has explored the health seeking behavior, medicinal use and self medication in rural and urban areas of one of the province of Pakistan which is hardly hit by terrorist's attack on public health care facilities and fragile law and order situation (Hussain et al., 2010). The objectives of this study is to assess the health-seeking behavior and extent of self-medication by members of the rural and urban areas of the biggest province of Pakistan, that is, Punjab whose law and order situation is better and also had better infrastructure of health care. It also aims to determine the factors responsible for this practice. The results should provide the focus for an effective public education campaign to improve drug use and increase awareness about the adverse effects about certain irrational practices.

MATERIALS AND METHODS

A randomized, cross-sectional, questionnaire-based, multi-center study of the prevalence of self-medication was performed in 5 cities of Pakistan that is, Lahore, Sialkot, Gujranwala, Faisalabad and Sargodha. The study was conducted from June, 2009 to May, 2010 and was materialized through a survey amongst a sample of randomly selected rural and urban households using both quantitative and qualitative aspects of medicines use. The households were followed up for a period of 12 weeks for the occurrence of any health disorder in the family. The male and female students of Pharmacy Department of Punjab University, Lahore and some of village activists and elders of the respective

areas were trained and deputed to follow-up these households on a weekly basis and maintain a record of all the health disorders occurring during that period and action taken by family members. The households were followed up to determine the health seeking behavior of the individuals and during the study period across rural and urban areas. If modern drugs were taken either on a self-medication or on prescription basis then a complete record of administration, duration etc. was maintained. In the absence of a reference estimate of self-medication, a figure of 50% of households practicing self-medication was used with a confidence level of 95% and precision of $\pm 5\%$. Data were analyzed using SPSS-17.

RESULTS

Socio demographic characteristics

A stratified random sample of 2100 households was selected from 10 villages and 16 Sectors from cities. Altogether, 1850 houses were visited and 550 (29.7%) households were from rural areas and 1300 (70.3%) from urban areas ($p > 0.001$) and response rate was 1850/2100 (88.10%). Distribution of these households by districts wise is given in Figure 1. Demographic characteristics of the household revealed that the mean age of the heads of the households was 47 ± 14 years. 30% of the heads were illiterate, 38% had studied up to tenth and 32% had up to secondary or higher education. The distribution of the heads of households by main occupation is given in Figure 2. The average age of the respondents was 43 ± 11 years. 67% of the respondents were males and 33% were females ($p > 0.001$). The average number of the members per household was 6.4 ± 2.8 . Breakdown of household members by age groups demonstrated that fewer than four children comprised 12.1%, 5 to 14 years children, 24.8%; 15 to 45 years adults, 45.1%, and adults over 45 years, 18% of the total population. On average, there were 0.91 ± 1.28 under one children and 2.16 ± 1.19 under five children per household. The household characteristics revealed the average number of rooms in the urban areas were 3.6 ± 9.4 as compared to 3.4 ± 1.7 in rural ($p > 0.384$). 94% of households in urban are paved as compare to 36% of households in rural areas ($p > 0.001$). 84% of urban household have some form of transport (bicycle, Motor cycle, car, cattle etc) as compared to 26% of rural areas ($p > 0.001$). There were 2.6 ± 1.9 earning members per household in urban as compared to 1.8 ± 1.1 in rural areas ($p > 0.828$) and the average monthly household income of persons in urban areas is $\text{Rs.} 9550 \pm 6890$ as compared to 5415 ± 2625 in the rural areas ($p > 0.001$). Urban and rural differences for various characteristics are given in (Table 1).

Drug availability and pattern of usage

A detailed assessment was done to determine the availability of drugs at home in rural and urban areas

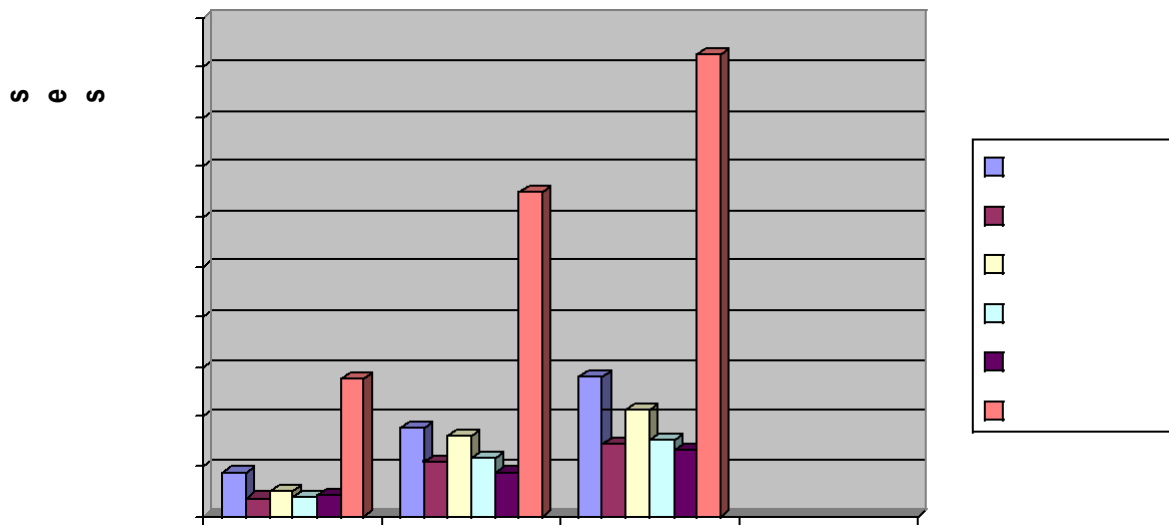


Figure 1. Distribution of households by district and urban/ rural areas.

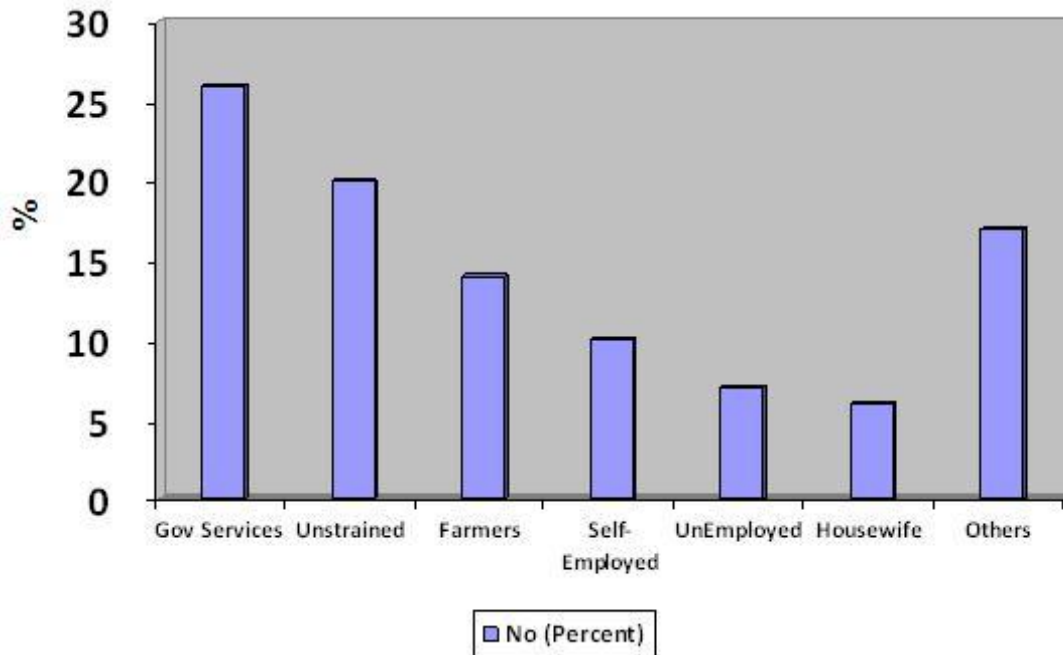


Figure 2. Distribution of heads of households by occupation.

Modern drugs were available in 64.2% of households, other drugs in 4.1% while 32.7% households had no drugs. Availability of modern drugs was studied with respect to several factors. The most common drugs available in the households were in urban areas analgesics, that is, 66% in rural as compared to 34% in urban areas ($p > 0.001$), 38% antibiotics in rural as compared to 62% in urban areas ($p > 0.001$), cough syrups 31% in rural ac compared to 69% in urban areas ($p > 0.001$), NSAIDs 18% in rural areas as compared to

88% in urban areas. Oral rehydration salt (ORS) was available in 52% of rural areas as compared to 48% in urban areas ($p > 0.212$). The other available drugs in the rural and urban households are given in Table 2. All 1850 households were followed up for an average period of 12 weeks to determine the health-seeking behavior of the community in case there was an illness episode in the household. During this period, altogether 3868 episodes of illnesses were recorded. There were 2.1 episodes of illnesses per household per 12 weeks period

Table 1. Urban rural differences of socio-economic characteristics.

Socio-economics characteristic	Urban (n = 1300)	Rural (n = 550)	p-Value
No. of room per household	3.6±9.4	3.4±1.7	0.384
Percent of paved houses	94%	36%	0.001
Percent of houses with some form of transport	84%	26%	0.001
No. of earning members per household	2.6±1.9	1.8±1.1	0.828
Monthly income (Rs.)	9550±6890	5415±2625	0.001

Table 2. Type of allopathic drugs available at home.

Types of drug	Number of drugs	Percentage	p-value
Analgesics	658	29.1	0.001
Antibiotics	273	12.1	0.001
Cough syrup	267	11.8	0.001
Vitamin tablets	262	11.6	0.001
NSAIDs	180	8.0	0.001
Anti-diarrheals	159	7.0	0.418
Anti-Malarial	96	4.2	0.001
Oral rehydration salt (ORS)	96	4.2	0.212
Others	270	11.9	0.118
Total	2261	100	

of follow up. In the rural area, there were 1.9 episodes, while in the urban areas there were 2.3 episodes of illnesses per household. The ailments that were documented during this period can conveniently be divided in two categories: Illnesses of shorter duration and chronic illnesses of longer duration. Amongst the short duration of illnesses, the most common were 41.2% fever, 14.5% upper and lower respiratory infections, 8.4% gastroenteritis, 8.6% skin problems and 21.2% aches and pains of all categories. Among the chronic diseases, the most common were 24.1% diabetes mellitus, 25.8% hypertension, 9.3% hepatitis B and C, 2.5% tuberculosis and 7.0% cardiovascular problem. Breakdown of diseases recorded during the follow-up period is given in Table 3. Altogether, 3868 episodes of illnesses that were encountered during the follow-up study were 764 or 22.7% episodes that did not require any medication. For the 3104 episodes of illnesses that required treatment altogether, 5653 drugs were prescribed and the average number of drugs taken was 1.82. An additional feature studied was to determine from where were these drugs were acquired. In rural areas, 28.4% drugs were acquired from Pharmacies as compared to 64.6% in urban areas ($p>0.001$), 14.2% from GPs by rural residents as compared to 23.4% of urban residents ($p>0.001$), 13.4% from public sector health facilities in rural areas as compared to 5% in urban areas ($p>0.001$), 38.9% from LHV's in rural areas as compared to 2% in urban areas. 5.2% in rural areas from other sources, that is, Hakim, homoeopaths or faith healers as compared to 2% in urban areas ($p>0.218$) (Table 4).

DISCUSSION

It is pertinent to mention that people are interested in using the services of a qualified doctor but their services are not available round the clock in majority of the areas. According to the Economic Survey of Pakistan (2006-2007), there was one doctor available for 1254 people whereas a WHO criterion for developing countries is minimum one doctor for 1000 population (Economic survey of Pakistan, 2006-2007). In Pakistan, almost every pharmacy sells drugs without a prescription; a phenomenon seen in many developing countries (Kiyangi and Lauwo, 1993). The relative low cost is important factor for resorting to self-medication and undesirable health seeking behavior. Drug retail outlets are cited to be the major sources of drugs that are used for self-medication and the availability of drugs in informal sector contribute to the increase in the practice of self-medication. In our study, modern drugs were available in 65.4% of households as compared to 54.5% recorded in earlier study, 6.5% other drugs as compared to 2.5% while 28.1% households had no drugs as compared to 43% in the study conducted by Hussain et al. (2010). The plausible reasons are literacy rate and more awareness about health care and better socio-economic conditions. Commonly, available drugs at homes were analgesics, antibiotics, cough syrups, vitamins, anti-malarials, NSAIDs, and others. The only difference in the present study is the availability of anti-malarial drugs at home which shows slightly different disease pattern and prevalence of Hepatitis B&C in areas studied. A study from Papua New

Table 3. Breakdown of diseases recorded during the follow-up period.

Disease	Number of cases	Percent
Short duration illnesses		
Fever (all categories)	1328	41.2
Pains (all categories)	683	21.2
Respiratory/Urinary Tract Infections	498	14.5
Skin/ulcers/rashes	278	8.6
Gastroenteritis	271	8.4
Others	164	5.1
Acute total	3222	73.6
Longer duration illnesses		
Hypertension	298	25.8
Diabetes mellitus	279	24.
Cardiac diseases	81	7.0
Fatal accident and injuries	32	2.8
Hepatitis (B & C)	108	9.3
TB	29	2.5
Others	286	24.7
Chronic total	1156	18.1
All total	4378	100

Table 4. Sources of acquisition of drugs by patients- urban rural difference.

Source	Rural (%)	Urban (%)	Total (%)	p-Value
Pharmacies (Chemists)	156(28.4)	840(64.6)	996 (53.84)	0.001
GPs	78 (14.2)	278(21.4)	356 (19.24)	0.001
Public facility	74 (13.4)	134(10.3)	208 (11.24)	0.001
LHV (Lady health visitors)	214(38.9)	26(2)	240 (13.0)	0.001
Others	28(5.1)	22(1.7)	50 (2.7)	0.218
Total	550 (100)	1300(100)	1850 (100)	

Guinea (Chang and Trivedi, 2003) had shown that drugs at home can be a waste as well as a danger as they are often inappropriately used. In Spanish households, 42% had antibiotics in home and 19% of these homes there was a family member currently being treated with an antibiotic (Orero et al., 1997). In Russia, antimicrobials are not included in the list of over the counter (OTC) medicaments, but people can freely purchase antibiotics from most state-managed and commercial drug stores. A survey of nine large cities in Russia found that 84% of 900 families stored antibiotics in the home without a physician's recommendations (Stratchounski et al., 2003). The main limitation of our study was we did not determine whether the antibiotics present in 12.1% of the respondents were leftover due to poor patient compliance where the patients did not complete the entire course of antibiotics as prescribed, or was simply due to too large packaging of antibiotics. This detail might be relevant since incomplete courses of antibiotics could themselves

possibly contribute to antibiotic resistance.

There is not much literature available on the treatment seeking behavior, self-medication or self-care in the urban or rural populations and especially comparisons between urban and rural areas. However, some individual research articles, report of National Health Survey of Pakistan and Economic Survey of Pakistan (National health survey of Pakistan, 1994) have some information on disease pattern, medication and available treatment facilities. In a study conducted in rural and urban population, the most preferred mode of treatment of about 42% population was Hakim, Quack, Peer and self-medication (Pervez et al., 1989), whereas, in our study, 63.0% population is using medicines from local pharmacies. It was also reported in the same study that to get treatment from a qualified doctor is out of reach of average Pakistani because of non-availability of government hospitals and dispensaries in each area especially in rural areas and due to high cost of treatment at private

hospitals (Pervez et al., 1989). Another study showed that in northern Balochistan of Pakistan (Hunte et al., 1992), majority of cases obtain treatment from different medical systems for a single episode. Health seeking behavior for childhood illnesses and assessment of the magnitude and reasons for self-medication were assessed in Karachi, Pakistan. Good past experience (61.3%) with the medicine was the main reason for self-medication (Haider and Thaver, 1995). In Cambodia, health-seeking behaviour between poor and better-off people was compared after health sector reform. Very poor people used the health centre more often than better-off people as a first step. For the second step, use of the health centre was also high among the poor compared with better-off people, although the difference was not statistically significant (Yanagisawa et al., 2004). The present study is the largest ever study conducted in Pakistan and represents the trends of around 30 to 40 millions peoples.

In Pakistan, almost every pharmacy sells drugs without a prescription; a phenomenon seen in many developing countries (Hussain et al., 2010). Drug retail outlets are reported to be the major sources of drugs that are used for self-medication and the availability of drugs in informal sector contribute to the increase in the practice of self-medication. It had been reported that by raising the socio-economic status through multi-sectoral development activities, that is, women's micro-credit, life-skill training and non-formal education have shown to have a positive impact on health seeking behaviour, morbidity and mortality besides the overall empowerment of women population (Ahmed et al., 2003, Stephenson et al., 2002). Public health awareness programs should be organized as components of public health efforts intended to help understand the disease process and difference between favorable and unfavorable health practices (Mumtaz et al., 2003). The utilization of a health care system whether formal or non-formal depend on socio-demographic factors, social structures, level of education, cultural beliefs and practices, gender discrimination, status of women and the disease pattern and health care system itself. Policy makers need to understand the drivers of health seeking behaviour of the population in an increasingly pluralistic health care system (Babar and Juanita, 2004). Eliminating barriers and the integration of health services among public and private resources are imperative for the regular and sustainable provision of health care to vulnerable, under-served groups (Ali and de Muynck, 2005).

Conclusion

Self-medication was reported in 15.7% of urban areas as compared to 8.3% of rural areas. It is difficult to eliminate. However, interventions can be made to discourage the rampant practice by giving awareness and education regarding the pros and cons of self medication, suggesting

measures to prevent the supply of medicines without prescription at pharmacy level, stringent rules regarding pharmaceutical advertising at the time of market authorization and measures be taken to make health care delivery much less difficult especially at primary health care level. The health care professionals should also be targeted through interventions to avoid the irrational use of drugs. Policy makers need to understand the drivers of health seeking behaviour of the population in an increasingly pluralistic health care system. Raising the socio-economic status through multi-sectoral development activities such as micro-credit, life-skill training and non-formal education can have a positive impact on health seeking behaviour, morbidity and mortality. Eliminating barriers and the integration of health services among public and private resources are imperative for the regular and sustainable provision of health care to vulnerable, under-served group

ETHICAL CONSIDERATIONS

All information provided by the respondents was held in strict confidence, and the study eliminated the possibility of future identification of the respondents. The study posed no risk to participants, as questionnaire did not include any sensitive questions, and it took around 10 min in average for participant to answer questions. There were no incentives for participation in the study. Participants did not benefit personally through their participation in the study.

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