

Prevalence and pattern of self-medication practices among population of three districts of South Karnataka

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ABSTRACT

Background: Self-medication is a general practice globally. People self-medicate by buying medicines at a medical shop either by asking its properties/symptoms such as pain killers/gastric drugs or by the advice of a qualified pharmacist/unqualified person in the medical store. This may lead to masking of severe/dangerous illness, which in turn can produce severe complications and heavy financial burden or loss of a life. Substandard drugs, improper dosage, dose intervals, lack of awareness of precautions or contraindications, and associated diseases can lead to drug interactions, drug poisoning/toxicity, and abuse of drugs. **Aims and Objective:** To assess the prevalence, pattern, and reasons for self-medication practices among population of three districts of South Karnataka. **Materials and Methods:** A preformed, pretested, and semistructured questionnaire was used to obtain the data. The questionnaire comprised questions regarding sociodemographic profile, use of self-medication, pattern of use of drugs, factors affecting their use, knowledge of the people regarding dose, duration, side effects, and interactions of the drugs in use, source of information about the drugs, and attitude toward allopathic, ayurvedic, and homeopathic medicines. The subjects were interviewed regarding the use of self-medication drugs for a recall period of 6 months duration. Statistical analysis was done using appropriate statistical method and software. **Result:** Of the 5,489 respondents, 4,316 (78.63%) reported self-medication within a 6-month recall period. Of these respondents, Mandya reported high self-medication practices (81.86%) when compared with Bangaloreans (72.39%). The difference was significant. Among the different age groups, high self-medication was seen in 41–60 years age group (40.48%) and low among those aged > 60 years (29.37%). The difference was significant. Self-medication was high in male (82.76%) than female subjects (72.87%). Self-medication was slightly more in rural population (79.05%) than urban respondents (78.20%). The most common conditions/symptoms for which self-medication was done was for gastric symptoms (72.10%), followed by joint pains (65.89%), headache (63.02%), fever (47.87%), and common cold (37.95%). The difference was statistically significant, with $P < 0.001$. Self-medication was significantly more in rural owing to nonavailability of doctors (62.01%) when compared with urban residents (38.14%). Self-medication was time-saving and, for minor illnesses, was also more in rural (64.99% and 73.78%, respectively) when compared with urban (58.82% and 68.76%, respectively) residents. The most important source of drug information for self-medication was family members and relatives (32.30%). **Conclusion:** The study showed the high prevalence of self-medication, and it was nearly same in

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both rural and urban population. Although most of the drugs self-medicated were in the list of over-the-counter drugs, but many used antimicrobial drugs, and some even got opioid analgesics as pain killers. In our study, we came to know that, on comparison, many rural female subjects were using steroids creams/ointments as fairness cream than urban female subjects. This is very dangerous, and government should have very strict guidelines for the sale of drugs for self-medication.

KEY WORDS: Self-medication; Prevalence; Non-prescription drugs; Rural Population

INTRODUCTION

Self-medication includes the usage of therapeutic products by people to treat self-recognized illnesses/indications. It also denotes the intermittent/constant use of a medication prescribed by a physician for lasting or repeated illnesses/indications.^[1] Self-medication includes obtaining medicines without a prescription; resubmitting old prescriptions to secure new ones; sharing medicines with friends, family members/relatives; or consuming remaining medicines kept at home.^[2] Self-medication thus forms a significant vital portion of self-care, which can be defined as the chief public health resource in the health-care system. It includes self-medication, nondrug self-treatment, social support in illness, and first aid in everyday life.^[1] Self-medication is extensively practised in both developed and developing nations, being more usual in the latter.^[3,4] Not much is identified about health-related problems and health-care utilization, including self-medication among young adults. The youth are greatly influenced by the media and the Internet, which promote self-medication behavior.^[5]

In 1995, the WHO Expert Committee on National Drug Policies stated, "Self-medication is widely practiced in both developed and developing countries. Medications may be approved as being safe for self-medication by the national drug regulatory authority. Such medicines are normally used for the prevention or treatment of minor ailments or symptoms, which do not justify medical consultation. In some chronic or recurring illnesses, after initial diagnosis and prescription, self-medication is possible with the doctor retaining an advisory role."^[6] There are several public and professional concerns about the illogical use of drugs. In developing countries such as India, easy availability of drugs at medical stores without prescriptions combined with insufficient health services result in raised amounts of drugs used as self-medication compared with prescribed drugs.^[7] Although, over-the-counter (OTC) drugs are meant for self-medication and are of proved efficacy and protection, their inappropriate use owing to very poor knowledge of their side effects and drug interactions could have serious implications, especially in extremes of ages (children and old age) and special physiological conditions such as pregnancy and lactation.^[8,9]

There is always a risk of interaction between active ingredients of OTC drugs and prescription medicines, which may worsen the existing disease pathology or create new ones. Very few studies have been published on the prevalence, pattern, and their attitude of self-medication among general population of South Karnataka. So, this questionnaire-based

study was conducted to assess the prevalence, pattern, and perception of self-medication and to assess the reasons and sources of information about self-medication, among the urban and rural population of Mandya, Mysore, and Bangalore districts of South Karnataka.

MATERIALS AND METHODS

A preformed, pretested, and semistructured questionnaire was used to obtain the data. The questionnaire comprised questions regarding sociodemographic characteristics, knowledge, and attitude regarding OTC drugs, pattern of use of OTC drugs, factors affecting their use, commonly used drugs for self-medication, knowledge of the people regarding dose, duration, side effects, and interactions of the drugs in use, source of information about the drug, attitude toward allopathic, ayurvedic, and homeopathic medicines. The subjects were interviewed regarding the use of OTC drugs for a recall period of 6 months duration. The interviewed people were educated regarding the correct use of OTC drugs and the adverse effects of using OTC drugs indiscriminately.

Inclusion and Exclusion Criteria

Individuals aged older than 18 years who gave informed consent were included in the study. Doctors, pharmacists, medical and nursing students, and others related to health-care delivery were excluded from the study.

Statistical Analysis

The collected data were entered in an Excel sheet and analyzed using descriptive statistics such as frequency, percentages, and proportions.

RESULT

A total of 6,000 persons were enrolled for the study. Of them, 5,489 (91.48%) persons consented to participate in the study and gave responses that we could use for the study. Of the 5,489 respondents, 4,316 (78.63%) reported self-medication within a 6-month recall period. Of the 5,489 respondents, 1,897 (34.53%) were from Mandya, 1,853 (33.74%) from Mysore, and 1,739 (31.68%) from Bangalore. Of them, respondents from Mandya reported high self-medication practices (81.86%) when

Table 1: Sociodemographic characteristics of the respondents and their self-medication practices

	Total (%)	18-40 (%)	41-60 (%)	> 60 (%)	Male (%)	Female (%)	Rural (%)	Urban (%)
Persons interviewed	5,489 (100)	1,655 (30.15)	2,222 (40.48)	1,612 (29.37)	3,196 (58.23)	2,293 (41.77)	2,750 (50.10)	2,739 (49.90)
Self-medication	4,316 (78.63)	1,262 (76.25)	1,727 (77.72)	1,327 (82.32)	2,645 (82.76)	1,671 (72.87)	2,174 (79.05)	2,142 (78.20)
P value		$\chi^2 = 19.71$ for 2 <i>df.</i> <i>P</i> < 0.001.			$\chi^2 = 77.65$ for 1 <i>df.</i> <i>P</i> < 0.001.		$\chi^2 = 0.59$ for 1 <i>df.</i> <i>P</i> = 0.44	
Mandya	1,553 (81.86)	453 (80.74)	615 (82.33)	485 (82.34)	920 (82.43)	633 (81.05)	731 (79.20)	822 (84.39)
Mysore	1,504 (81.17)	422 (74.55)	617 (83.04)	465 (83.93)	941 (84.34)	563 (76.29)	686 (76.14)	818 (85.92)
Bangalore	1,259 (72.39)	387 (68.98)	495 (71.02)	377 (78.37)	784 (81.24)	475 (61.37)	725 (78.29)	534 (65.69)
P value		$\chi^2 = 2.686$ for 4 <i>df.</i> <i>P</i> = 0.6117.			$\chi^2 = 4.294$ for 2 <i>df.</i> <i>P</i> = 0.1168.		$\chi^2 = 45.66$ for 2 <i>df.</i> <i>P</i> < 0.001.	

compared with Bangaloreans (72.39%). The difference was significant (Table 1).

Among the different age groups, 40.48% were aged between 41 and 60 years, 30.15% and 29.37% were aged 18-40 years and older than 60 years, respectively. High self-medication was seen in 41-60 years age group (40.48%) and low among those aged > 60 years (29.37%). The difference was significant. A total of 3,196 (58.23%) of the respondents were male subjects, of which 82.76% reported self-medication practices, while it was 72.87% among female respondents. The difference was significant. A total of 2,750 (50.10%) of the respondents were rural residents, of which 79.05% reported self-medication practices, while it was 78.20% among urban respondents. The difference was not significant.

Significant differences that were found in the different subgroups of the three centers were between > 60 years age group (83.93%) and 41-60 years age group (71.02%) and between male respondents of Mysore (84.34%) and female respondents of Bangalore (61.37%). Significant difference was seen between urban Mysoreans (85.92%) and urban Bangaloreans (65.69%). Of the 4,316 persons who had practised self-medication, the most common conditions/symptoms for which self-medication was done was for gastric symptoms (72.10%), followed by joint pains (65.89%), headache (63.02%), fever

(47.87%), and common cold (37.95%). The difference was statistically significant, with *P* < 0.001.

Among the persons aged between 18 and 40 years, the most common symptoms for self-medication was headache (62.51%) and joint pains (54.83%), while among 41-60 years, it was gastric symptoms (74.63%) and joint pains (67.40%). In the elderly persons aged older than 60 years, the most common symptoms for self-medication were joint pains (74.46%) and gastric symptoms (77.31%). Male subjects mostly did self-medication for gastric symptoms (84.64%) and joint pains (61.20%), whereas female subjects did self-medication for headache (77.13%) and joint pains (73.30%). In urban population, the most common symptoms for self-medication were gastritis (69.42%) and headache (68.76%), while rural people self-medicated mainly for joint pains (83.94%) and gastric symptoms (74.74%) (Table 2).

Of the 4,316 persons, 71.29% responded that they took self-medication for minor illnesses only. About 61.93% felt that self-medication saved their time. Among the different age groups, self-medication was significantly more for minor illnesses and time-saving among 18-40 years (73.61% and 63.94%) compared with those aged older than 60 years (68.57% and 59.68%). About 85.28% female subjects used self-medication for minor illness when compared with 62.45% male subjects. The difference was significant, with *P* < 0.001.

Table 2: Conditions/symptoms for self-medication of the respondents

Symptoms	Total (%)	18-40 (%)	41-60 (%)	> 60 (%)	Male (%)	Female (%)	Rural (%)	Urban (%)
Joint pains	2,844 (65.89)	692 (54.83)	1,164 (67.40)	988 (74.46)	1,619 (61.20)	1,225 (73.30)	1,019 (47.57)	1,825 (83.94)
Gastric symptoms	3,112 (72.10)	797 (63.15)	1,289 (74.63)	1,026 (77.31)	2,186 (82.64)	926 (55.41)	1,487 (69.42)	1,625 (74.74)
Fever	2,066 (47.87)	676 (53.57)	797 (46.15)	593 (44.69)	1,148 (43.40)	918 (54.93)	904 (42.20)	1,162 (53.44)
Headache	2,720 (63.02)	789 (62.51)	939 (54.38)	992 (74.76)	1,431 (54.10)	1,289 (77.13)	1,473 (68.76)	1,247 (57.35)
Common cold	1,638 (37.95)	517 (40.97)	692 (40.07)	429 (32.32)	948 (35.84)	690 (41.29)	913 (42.62)	725 (33.34)
Sore throat	1,228 (28.46)	452 (35.81)	475 (27.50)	301 (22.68)	817 (30.88)	411 (24.60)	643 (30.01)	585 (26.90)
Abdominal pain	827 (19.17)	368 (29.16)	282 (16.32)	177 (13.33)	395 (14.93)	432 (25.85)	366 (17.08)	461 (21.20)
Diarrhea	436 (10.10)	143 (11.33)	115 (6.66)	178 (13.41)	207 (7.82)	229 (13.70)	174 (8.12)	262 (12.05)
Allergy	42 (9.89)	130 (10.30)	142 (8.22)	155 (11.68)	262 (9.90)	165 (9.87)	204 (9.52)	223 (10.25)
P value		$\chi^2 = 301.8$ for 16 <i>df.</i> <i>P</i> < 0.001.			$\chi^2 = 321.2$ for 8 <i>df.</i> <i>P</i> < 0.001.		$\chi^2 = 283.6$ for 8 <i>df.</i> <i>P</i> < 0.001.	

Table 3: Reasons for self-medication

Reasons	Total (%)	18-40 (%)	41-60 (%)	> 60 (%)	Male (%)	Female (%)	Rural (%)	Urban (%)
Nonavailability of doctors	2,165 (50.16)	654 (51.82)	872 (50.49)	639 (48.15)	1,343 (50.77)	822 (49.19)	1,348 (62.01)	817 (38.14)
Economical	2,583 (59.84)	775 (61.41)	1,035 (59.93)	773 (58.25)	1,622 (61.32)	961 (57.51)	1,279 (58.83)	1,304 (60.88)
Time-saving	2,673 (61.93)	807 (63.94)	1,074 (62.19)	792 (59.68)	1,682 (63.59)	991 (59.30)	1,413 (64.99)	1,260 (58.82)
Illness is minor	3,077 (71.29)	929 (73.61)	1,238 (71.68)	910 (68.57)	1,652 (62.45)	1,425 (85.28)	1,604 (73.78)	1,473 (68.76)
P value		$\chi^2 = 0.125$ for 6 <i>df</i> . <i>P</i> = 1.00			$\chi^2 = 72.74$ for 3 <i>df</i> . <i>P</i> < 0.001.		$\chi^2 = 85.85$ for 3 <i>df</i> . <i>P</i> < 0.001.	

Self-medication was significantly more in rural residents owing to nonavailability of doctors (62.01%) when compared with urban residents (38.14%). Self-medication to save time and for minor illnesses was also more in rural (64.99% and 73.78%) compared with urban (58.82% and 68.76%) residents. The responders were asked for their source of drug information for self-medication. The results revealed that the important sources of information for self-medication were family members and relatives (32.30%), health-care providers (26.74%), and pharmacists (24.37%). For respondents aged 18-40 years, the sources were mainly friends (41.91%) and pharmacists (29.47%). For those aged 41-60 years, it was family and relatives (35.78%) and health-care providers (28.49%). For those aged older than 60 years, the sources were health-care providers (38.20%) and family and relatives (36.55%) (Table 3).

Male subjects relied more on family and relatives (31.45%) and pharmacists (26.12%) for information on self-medication, while female subjects got the information from family and relatives (32.47%) and health-care providers (30.10%). Not much difference is seen in the rural and urban residents' source of information, which was most from family and relatives (32.47% and 32.12%), followed by health-care providers (27.50% and 25.96%, respectively) (Table 4).

DISCUSSION

The use of self-medication is widespread all over the world, especially urban and educated population.^[10,11] The proportion

of the respondents who had practised self-medication is very high. This is indeed alarming in view of the possible hazards associated with such practice. The prevalence of self-medication in our study was found to be 78.63% and is nearly same in both rural and urban population. This study also indicated low knowledge about dose, duration, side effects, and drug interactions of commonly used drugs in accordance with reports of the previous studies.^[12,13] Use of drugs from alternative medicine (herbal, ayurvedic, and homeopathy) was also reported, more frequently by people of Bangalore urban (17%), least by the people of Mandya rural (3%). The reason for use of these alternative medicines is that they have belief that these medicines are free from adverse effects. There is a chance of using expired drugs, sharing them with friends or taking medicine that have been originally prescribed for some other problem. Irrational use of drugs may lead to accidental drug poisoning. Other problems related to self-medication are wastage of resources and serious health hazards such as drug dependence, adverse reaction, and prolonged suffering. Anti-microbial resistance is another important problem worldwide, particularly in developing countries where antibiotics are often available without a prescription.^[14]

Previous studies in India have shown that the prevalence of self-medication was 37% in urban population and 17% in rural population,^[15] whereas the self-medication practice was 12.7%-95% in other developing countries.^[16-18]

The most important reason for increase in trend of self-medication is easy availability of all categories of medicines—OTC, prescriptions only or even schedule X drugs without prescription.

Table 4: Source of information for self-medication of drugs

Source of information	Total (%)	18-40 (%)	41-60 (%)	> 60 (%)	Male (%)	Female (%)	Rural (%)	Urban (%)
Family and relatives	1,394 (32.30)	291 (23.05)	618 (35.78)	485 (36.55)	832 (31.45)	562 (33.63)	706 (32.47)	688 (32.12)
Health-care providers	1,154 (26.74)	155 (12.28)	492 (28.49)	507 (38.20)	651 (24.61)	503 (30.10)	598 (27.50)	556 (25.96)
Pharmacist	1,052 (24.37)	372 (29.47)	357 (20.67)	323 (24.34)	691 (26.12%)	361 (21.60)	536 (24.65)	516 (24.09)
Friends	688 (15.94)	429 (33.40)	196 (11.35)	63 (4.74)	459 (17.35)	229 (13.70)	353 (16.24)	335 (15.64)
Advertisement	339 (7.85)	193 (15.29)	114 (6.60)	32 (2.41)	220 (8.13)	119 (7.12)	139 (6.39)	200 (9.33)
P value		$\chi^2 = 729.6$ for 8 <i>df</i> . <i>P</i> < 0.001.			$\chi^2 = 31.89$ for 4 <i>df</i> . <i>P</i> < 0.001.		$\chi^2 = 13.29$ for 4 <i>df</i> . <i>P</i> = 0.0099.	

It is understandable that a significant proportion of the respondents in our study used analgesics either alone or in combination with other drugs without prescription as common analgesics can be bought without prescription in the community. Most respondents gave the reason for self-medication to the fact that they felt that their complaints were minor enough for such self-care. This is a dangerous assumption as minor ailments that could easily have been managed by a physician could easily be mismanaged through self-medication. Most of the respondents from rural population attributed the reason for self-medication was non availability of doctors and to their financial constraint. This finding is at variance with other developing countries in a study conducted at Sudan where the main reason for self-medication was financial constraint.^[19]

This study highlights the high rate of self-medication practices both in urban and rural areas and the reasons for the same. As this study was conducted in a limited population in few districts of South Karnataka, generalization of the study to all the population cannot be done, and it requires large study in entire Karnataka with adequate sampling methods.

CONCLUSION

In our study, we focussed on the self-medication practice on prevalence, pattern perception, and reasons for using it. Majority of the respondents practised self-medication using drugs such as analgesics, antigastric agents, and antibiotics used either alone or in combination. The main reasons identified for self-medication were their assessment of their ailment as being minor and financial constraint and non availability of doctors in rural areas. Health-care providers should educate patients on the dangers of self-medication. Such messages should be extended to the community at large periodically by government health ministry/authorities. Government should enforce relevant and strict legislation, which limits the sales of drugs without prescription to only few relatively harmless OTC ones. There is need to create awareness about existing health facilities so that patients will know where to go when the need arises thereby minimizing the potential resort to self-medication.

REFERENCES

- World Health Organization. *Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self Medication*. Geneva: WHO, 2000 Available at: <http://apps.who.int/medicinedocs/pdf/s2218e/s2218e.pdf> (last accessed on 14 February 2013).
- Loyola Filho AI, Lima-Costa MF, Uchôa E. Bambuí Project: a qualitative approach to self-medication. *Cad Saude Publica*. 2004;20(6):1661-9.
- Baig S. Self medication practices. *Professional Med J*. 2012;19(4):513-21.
- Bang S, Sontakke S, Thawani V. Pre and post-interventional pattern of self medication in three common illnesses in staff of a tertiary hospital. *Indian J Pharmacol*. 2011;43(3):275-7.
- Klemenc-Ketis Z, Hladnik Z, Kersnik J. A cross sectional study of sex differences in self-medication practices among university students in Slovenia. *Coll Antropol*. 2011;35(2):329-34.
- World Health Organization. *Contribution to updating the WHO Guidelines for Developing National Drug Policies Report of a WHO Expert Committee Meeting, June 19-24 1995*.
- Shankar PR, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. *BMC Family Pract*. 2002;3:17.
- Murray MD, Callahan CM. Improving medication use for older adults: an integrated research agenda. *Ann Intern Med*. 2003;139:2425-9.
- Choonara I, Gill A, Nunn A. Drug toxicity and surveillance in children. *Br J Clin Pharmacol*. 1996;42(4):407-10.
- Lam CL, Catarivas MG, Munro C, Lauder IJ. Self-medication among Hong Kong Chinese. *Soc Sci Med*. 1994;39(12):1641-7.
- Sanghani S, Zaveri HG, Patel VJ. Self medication: prevalence and pattern in urban community. *J Pharmacovigilance Drug Saf*. 2008;5:95-8.
- Heineck I, Schenkel EP, Vidal X. Non-prescription drugs in Brazil. *Rev Panam Salud Publica*. 1998;3:385-91.
- Hughes L, Whittlesea C, Luscombe D. Patients knowledge and perceptions of the side-effects of OTC medication. *J Clin Pharm Ther*. 2002;27(4):243-8.
- Sarkar P, Gould IM. Antimicrobial agents are societal drugs: how should this influence prescribing? *Drugs* 2006;66(7):893-901.
- Dineshkumar B, Raghuram TC, Radhaiah G, Krishnaswamy K. Profile of drug use in urban and rural India. *Pharmacoeconomics*. 1995;7(4):332-46.
- Kasilo OJ, Nhachi CF, Mutangadura EF. Epidemiology of household medications in urban Gweru and Harare. *Cent Afr J Med*. 1991;37(6):167-71.
- Figueiras A, Caamano F, Gestal-Otero JJ. Sociodemographic factors related to self-medication in Spain. *Eur J Epidemiol*. 2000;16(1):19-26.
- Omolase CO, Adeleke OE, Afolabi AO, Afolabi OT. Self medication amongst general outpatients in a Nigerian community hospital. *Ann Ib Postgrad Med*. 2007;5(2):64-7.
- Awad AI, Eltayeb IB, Capps PA. Self-medication practices in Khartoum State, Sudan. *Eur J Clin Pharmacol*. 2006;62(4):317-24.

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