

A Survey of Drug Use Patterns in Western Nepal

P R Shankar, P Kumar, A M Theodore, P Partha, N Shenoy

ABSTRACT

Background: In Nepal, self-treatment is common and complementary medicine practitioners play an important role in providing health services. Previous studies on drug use patterns have been mainly carried out in the Kathmandu valley. Studies in the Pokhara valley, western Nepal are lacking. The objectives of our study were to obtain: 1) baseline information on drug use patterns in the preceding six-month period, 2) reasons for using complementary and self-medication and 3) any association of drug use patterns with demographic variables.

Methods: Health workers of the community medicine department carried out the study in Pokhara city and Bedabari village using a semi-structured questionnaire. Differences in the proportion of patients using self-medication and complementary medicines according to sex, age, place of residence and socioeconomic status of the family were analysed by the z test of proportions ($p < 0.05$).

Findings and conclusions: One hundred and twenty individuals from 112 households had used prescribed allopathic or complementary remedies. Seventy-one point six percent of the respondents had used allopathic medicines. The commonest allopathic medicines prescribed were antibiotics and paracetamol. Complementary medicine use was more common among older respondents (>30 years). Thirty-nine families practiced self-medication with home remedies accounting for 18.9% of the drugs used. Self-medication was more common among rural households. Complementary practitioners should be integrated into the health care system to provide health care in the rural areas. Studies on drug use patterns and on factors influencing drug use in the remote areas of Nepal are urgently required.

Keywords: drugs, drug-monitoring-methods, non-prescription-therapeutic use, self-medication-statistics

INTRODUCTION

Health care in Nepal is provided by both allopathic and traditional health care providers. Health care services are most effective, if they are compatible with the needs and aspirations of the people. Allopathic services are provided by private practitioners, compounders and the government health centres. Compounders are usually persons without a formal medical qualification who have been working under a registered practitioner helping him prepare medicines, dressing wounds and doing other jobs in the clinic. After a few years' experience they usually start their own practices. Traditional health care providers are classified as: 1) Faith healers: a) Dhamsi-Jhankri b) Pandit-Lama-Gubhaju-Pujari and c) Jyotishi and 2) Medical providers: a) Baidhya-Kabiraj b) Jadi-Buti wala⁽¹⁾. Dhamsi and jhankris are faith healers who put the patient into a trance by chanting and beating on a drum. Pandits, lamas, gubhaju and pujari are the priestly classes of the different ethnic and religious groups in Nepal. Baidhyas and Kabiraj are ayurvedic physicians who use elixirs, metal preparations and also herbs. Jadi-Buti wala are herbalists who use only herbs for treating illnesses.

In Nepal due to historical, socio-cultural and economic reasons a modern health care system is not widely prevalent. So there is an increased dependence on traditional systems of medicine. Even in the developed world the use of complementary and alternative medicines (CAM) has been steadily increasing in the past decade^(2,3). In the developed countries, patients preferring CAM are generally female, of a high socio-economic class and with a more holistic approach to life^(4,5). In Nepal, about two decades ago it was found that the hill people turned to Dhamsi-Jhankris for their health care needs⁽⁶⁾. However, major changes have taken place since then. Many new medical colleges have come up all over Nepal and the number of trained doctors has increased substantially⁽⁷⁾. It was found that most local people preferred private dispensaries owned by so-called compounders to the free health services at the government operated health centres⁽⁸⁾. Unfamiliarity

Department of
Pharmacology
Manipal College of
Medical Sciences
Pokhara
Nepal

P R Shankar, MD
Lecturer

Department of
Community
Medicine

P Kumar, MD
Professor

A M Theodore, MSc
Assistant Professor

Department of
Medicine
Manipal Teaching
Hospital

P Partha, DNB
Lecturer

Department of
Community
Pharmacy
Manipal Teaching
Hospital

N Shenoy, MPharm
Lecturer

Correspondence to:
Dr P R Shankar
Tel: 00977-61-523600
Fax: 00977-61-527862
Email: mcoms@mos.com.np or pathiyilravi@rediffmail.com

with the medical personnel and absence of medicines were the reasons cited for not preferring the health centre. In Kaski district and other selected districts of Nepal a community fund has been set up to ensure that the health centres are well stocked with medicines⁽⁹⁾.

Health assistants are persons who have undergone a one and a half year course after completing their school education. During the course they are taught to identify common illnesses, to treat them and when to refer patients for more specialised care. During the last three months of the course they have to work under a trained health assistant. Due to the lack of doctors in rural areas, health assistants man most of the health centres in rural Nepal.

Self-treatment of common illnesses by lay people is common in economically deprived countries^(9,10). Common reasons cited for self-medication are inaccessibility of health care facilities, economic constraints and previous experience of illness. Since drug use studies in the community and factors influencing the drug use patterns are lacking in the Pokhara valley, the present study was carried out. The objectives of our study were:

1. to obtain baseline information on drug use patterns in the six month period preceding the study, including the use of complementary medicines and self-medication.
2. to obtain an overview of the reasons for using complementary medicines and self-medication, and
3. to note any association between demographic variables and patterns of medication use.

METHODS

The study was carried out during the month of September 2001. The respondents were interviewed by the health workers of the department of community medicine who were briefed beforehand regarding allopathic and complementary medications and drug use indicators. A semi-structured questionnaire was used for the interviews.

The study was carried out in three wards of Pokhara city and the neighbouring village of Bedabari. The total population covered in the study was 8,438. The households to be interviewed were selected by simple random sampling. The ethnic group, occupation, average monthly family income, the number of members in the family and the address of the respondents were noted. The pattern of drug use in the families in the preceding six month period was noted. Details about medicines used by the patient, the system of medicine preferred, the practitioner and the source of medicine were also collected. Patient details, the patient outcome and the approximate expenditure on the medicines were noted and if

relevant, the reason for preferring CAM remedies were also noted.

Respondents were asked about any self-medication episodes in their family during the preceding six months. For the purpose of our study, self-medication was defined as use of any medication (allopathic or complementary) obtained by the patient from the medical store or from the forest or house courtyard, without prescription from either an allopathic or a CAM practitioner.

Differences in the proportion of respondents using self-medication and CAM remedies according to sex, age, place of residence and socioeconomic status were analysed using the z test of proportions. A p value <0.05 was taken as statistically significant.

Recall bias was one of the problems encountered in our study. Our health workers while interviewing the respondents, often, asked to see leftover pills or medicine bottles in the different households. We have not quantitatively evaluated this bias.

RESULT

One hundred and twelve household heads were interviewed using the questionnaire during the study period. Eighty-seven of the 112 households (77.7%) surveyed were male headed while the remaining 23.3% were female headed. The commonest ethnic group encountered in the study was Brahmins 34 (30.3%). Other significant groups were Gurungs 15 (13.4%) and Chettris 13 (11.6%). Sixty-one of the total of 112 households were engaged in non-agricultural pursuits.

Fifty-two households were middle class by Nepalese standards with an average monthly income between 1,000 and 3,000 Nepalese rupees (1 US dollar = 75 Nepalese rupees). Twenty-two households were poor with an average monthly income of less than 1,000 rupees. Majority of the households (66.9%) had less than six members. Eighty households were urban and the rest were rural. Seventy-four households (66%) had used prescribed medications.

One hundred and twenty individuals from the 112 households had used prescribed medications, giving an average of 1.07% persons per family. Sixty-four out of the 120 individuals were male and the remaining 56 were female. Forty-three individuals were aged between 20 and 30 years. The next commonest group was between the ages of 40 and 50.

Out of the total of 120 persons who had used medicines, 86 had used modern allopathic medicines. The patients had visited more than one practitioner for an episode of illness. The doctors and the health assistants were the commonly visited allopathic practitioners and accounted for 28% and 27.4% of the total visits. The sick persons had a total of 164

Table I. Sources of medicines sought by the respondents during health encounters.

Source	Number of encounters	Urban Number of encounters (%)	Rural Number of encounters (%)
Medical shop	61	45 (38.8)	16 (33.3)
Health post	41	29 (25)	12 (25)
Traditional practitioners	32	20 (17.2)	12 (25)
Home remedies	24	17 (14.6)	7 (14.6)
Hospital	6	5 (4.3)	1 (2.1)
Total	164	116	48

Table II. Number of visits to a health care practitioner according to the age of the patients and place of residence.

System of medicine	Age of patient		Urban Number of visits (% of total visits)	Rural Number of visits (% of total visits)	Total
	≤30 years [#]	>30 years			
Modern	66	52	88 (53.6)	30 (18.3)	118
Complementary	16	30*	28 (17.1)	18 (11)	46
Total	82	82	116	48	164 ⁺

* z value = 2.46, $p < 0.05$ compared to the proportion using complementary medicine among respondents ≤30 years.

⁺ 164 visits to health care practitioners were made by the 120 respondents during the study period.

[#] We have chosen 30 years as the cut off point between the younger and the older generation as significant changes in education and socioeconomic development have occurred in Nepal in the last 30 years.

Table III. Visits to a health care practitioner according to the socioeconomic status of the family and place of residence.

System of medicine	Socioeconomic status			Total ⁺
	<1000	1000-3000	>3000	
Modern	17	56	45	118
Urban	11	41	36	88
Rural	6	15	9	30
Complementary	19**	14	13	46
Urban	11	7	10	28
Rural	8	7	3	18

* z = 2.7, $p < 0.05$ compared to the group with average monthly family income greater than 3000.

** z = 4, $p < 0.05$ compared to the group with average monthly family income between 1000 and 3000.

⁺ 164 visits to health care practitioners were made by the 120 respondents during the study period.

Table IV. Rural-urban differences in the frequency of self-medication.

Place of residence	Self-medication		Total
	Used	Not used	
Rural	24*	15	39
Urban	15	58	73
Total	39	76	112 ⁺

* z = 4.55, $p < 0.05$ compared to the proportion of urban families using self-medication.

⁺ A total of 112 families were surveyed.

encounters with the health care system. The medical shop was the commonest source of medicines. The medical shops sold drugs both on prescription and also on demand without a prescription. The medical shops generally sold allopathic medicines along with a few CAM remedies. The other sources of medicines are shown in Table I. Medical shops are usually run by persons, who may or may not have professional training. Efforts are being made to train these drug retailers⁽¹¹⁾. Health posts are the first level of contact of the population with the health care delivery system. They are under the administrative control of the primary health centres and are usually manned by health assistants.

In the 164 encounters, a total of 217 drugs were prescribed giving an average of 1.32 drugs per encounter. CAM remedies constituted 32.2% of the total drugs consumed. The commonest allopathic medicines were antibiotics and paracetamol accounting for 24.3% and 18% of the total drugs prescribed.

The approximate family expenditure on medications during the preceding six-month period was less than 100 rupees in 32.9% of the cases and more than 250 rupees in 34% of the cases.

CAM practitioners accounted for 46 out of the total of 164 visits (28%) to health practitioners. A significantly greater proportion of individuals above the age of 30 years had used complementary medicines compared to those less than or equal to 30 years of age as shown in Table II. CAM usage was also significantly higher among families with an average monthly income less than 1,000 rupees. This is shown in Table III. There was no significant sex difference in the proportion of visits to a CAM practitioner, though it was higher among females. Rural respondents had made a greater proportion of visits to a CAM practitioner compared to urban respondents but the difference was not statistically significant. Respondents belonging to the poor socioeconomic class, especially from the rural areas, were more frequent users of CAM but the difference was not significant. The commonest reasons cited for using CAM remedies were faith in the practitioner and lesser side effects.

Self-medication was practised by 34.8% of the families surveyed. The commonest drug used for self-medication was paracetamol accounting for 41.3% of the drugs used. Traditional home remedies accounted for 18.9% of the drugs used for self-medication. In 24 cases (14.6%) the respondents had used home remedies. Self-medication was more common among rural households compared to urban ones as shown in Table IV. The reasons given for self-medication were simple illness, previous experience of treating a

similar illness and medicinal herbs were easily available in the courtyard of the house. Among the 39 families who had used self-medication, 24 had spent less than 75 Nepalese rupees (\$1), 12 had spent between 75 and 225 Nepalese rupees (\$1 and \$3) while three had spent over 225 Nepalese rupees (\$3).

DISCUSSION

The commonest ethnic groups encountered in the study were Brahmins followed by Gurungs and Chettris. This corresponds to the data in the District development profile of Nepal⁽⁷⁾. Most of the respondents in the study were engaged in non-agricultural occupations and this could be because 80% of the respondents were residing in Pokhara city.

A total of 217 drugs were prescribed during the six-month period under study. The drug use is difficult to compare with previous studies as the population and socioeconomic parameters are different. Seventy-one point six percent of the respondents who had used medicines had used modern medicines. In a previous study based on the meta-analysis of literature, more than 50% of people in Nepal had used CAM remedies⁽¹⁾. This discrepancy could be due to our study population being more urban and the economic development indices of Kaski district being higher than of most other regions in Nepal⁽⁷⁾.

The respondents had visited more than one practitioner during an episode of illness. Common reasons cited for this were the illness was not cured, personal attention was not given by the practitioner and the patient did not have sufficient faith in the practitioner. The respondents preferred CAM remedies especially for chronic illness which is similar to the findings in previous studies^(12,13).

The doctor and the health assistant were the commonly visited practitioners. Doctors in private practice accounted for 60.2% of the total visits to doctors. The utilisation of government health facilities was lower than that reported by previous studies in Ethiopia⁽¹⁴⁾ and Thailand⁽¹⁵⁾. Since these are also developing countries, the reasons for the low utilisation of government health facilities needs to be investigated. However, differences in topography, cultural and socioeconomic conditions may be, confounding variables. In a previous study in Nepal private practitioners were found to be more popular than the government health personnel⁽⁸⁾. The reasons cited for the preference were the private practitioners were local people and were more accessible at any time of the day or night. A proportion of the respondents had visited government doctors as private patients when they were doing private practice in the evenings.

CAM remedies continue to be popular both as home remedies and on prescription by a CAM practitioner. Herbal remedies as shown in a previous study⁽¹⁶⁾ are easily available and in Nepal, knowledge of herbal remedies precedes that of western medicines. CAM practitioners are usually village elders and occupy a high place in society. Their position can be used to increase the acceptance of modern medical practices including immunisation among the rural population. There should be greater integration of modern and traditional medical systems which has been achieved to a large extent in the far eastern Asian countries⁽¹⁷⁾. The medical shop was the commonest source of medicines. Medical shops are common in both the urban and rural areas of Nepal and training of the retailers has been tried as an approach to improving the quality of medical care⁽¹¹⁾.

The use of CAM remedies was significantly higher among persons above the age of 30 years and among families of low socioeconomic status. The use was also significantly higher among rural households. So economic criteria, lack of accessibility to modern health care systems and easy availability of herbal remedies were the common factors predisposing to the use of CAM remedies. In Nepal there is a shortage of trained health personnel in the rural areas. Induction of CAM practitioners into the government health care system after a course of basic training may help in meeting the shortage. These findings are, in contrast, to the situation in developed countries^(4,5). One of the reasons, maybe, that in developing countries CAM remedies are the older, indigenous system of medicine and being cheaper are preferred by the disadvantaged sections of society.

Self-treatment is a common and often necessary part of health care. The reasons commonly cited for self-medication were easy availability of herbs, previous experience of treating a similar illness and economic constraints. These were similar to the reasons cited previously⁽¹⁸⁾. Thirty-four point eight percent of the families surveyed had used self-medication which is similar to reports in the literature^(15,19). Analgesics were the commonest drugs used for self-medication. Drug hoarding has been reported in the literature⁽¹⁴⁾ and distance is an important factor influencing the utilisation of health services⁽⁸⁾. Because of the difficulty in reaching health care services and because the medical shops are widely distributed in the villages, the rural population may be more prone to self-medication practices, as has been shown in our study.

As mentioned in the methods, recall bias could be a potential limitation of the study. Problems in remembering the details of the medicines which were taken for particular illnesses could affect the

generalisation of results to bigger populations. Quantitative estimation of recall bias may help in more precise delineation of the limits of the study. However, this was not done in the present study.

The study was mainly based around Pokhara city and urban households constitute 65.2% of the total households covered in the study. Since Nepal is predominantly an agricultural country with over 85% of the population residing in rural areas⁽⁷⁾ it would be difficult to generalise our results.

Visits to CAM practitioners accounted for 28% of the total visits made by the study population to health care practitioners. Older respondents (>30 years) were more frequent users of CAM remedies. Faith in the practitioner and lesser side effects were common reasons for using CAM remedies. Out of the total of 112 households surveyed 34.8% had used self-medication. Self-treatment was more common in the rural areas. Simple nature of the illness and previous experience of treating a similar illness were common reasons for self-medication. More detailed studies on the drugs used, the factors influencing self-medication, duration of treatment and treatment outcomes are required, especially in the more remote areas of Nepal.

REFERENCES

- Gartoulla RP. Alternative medication practices (dissertation). Darjeeling (India): North Bengal University, 1992.
- Nilsson M, Trehn G, Asplund K. Use of complementary and alternative medicine remedies in Sweden. A population-based longitudinal study within the northern Sweden MONICA project. *J Int Med* 2001; 250:225-33.
- Kessler RC, Davis RB, Foster DF, Van Rompay MI, Walters EE, Wilkey SA, et al. Long term trends in the use of complementary and alternative medical therapies in the United States. *Ann Int Med* 2001; 250:262-8.
- Mitzdorf U, Beck K, Horton-Hausknecht J, Weidenhammer W, Kindermann A, Takaes M, et al. Why do patients seek treatment in hospitals of complementary medicine. *J Altern Complement Med* 1999; 5:463-73.
- Furnham A, Kirkcaldy B. The health beliefs and behaviours of orthodox and complementary medicine clients. *Br J Clin Psychol* 1996; 35:49-61.
- Shrestha R, Lediard M. Faith-healers: A force for change. UNICEF, Kathmandu, 1980.
- Sharma HB, Gautam RP, Vaidya S. (Eds.) District development profile of Nepal. Informal sector research and study center, Kathmandu, 2001.
- Dhungel B. Accessibility to social services in rural Nepal: a case study in Kavre district (dissertation). Bangkok: Asian institute of technology, 1983.
- Chaulagai CN. Community financing for essential drugs in Nepal. *World Health Forum* 1995; 16:92-4.
- Saradamma RD, Higginbotham N, Nichter M. Social factors influencing the acquisition of antibiotics without prescription in Kerala state, south India. *Soc Sci Med* 2000; 50:891-903.
- Kafle KK, Gartoulla RP, Pradhan YM, Shrestha AD, Karkee SB, Quick JD. Drug retailer training: experiences from Nepal. *Soc Sci Med* 1992; 35:1015-25.
- White P. What can general practice learn from complementary medicine? *Br J Gen Pract* 2000; 50:821-3.
- Eisenberg DM, Kessler RC, Van Rompay MI, Kaptchuk TJ, Wilkey SA, Appel S, et al. Perceptions about complementary medicine relative to conventional therapies among adults who use both: results from a national survey. *Ann Int Med* 2001; 135:344-51.
- Amare G, Gedif T, Alemayehu T, Tesfahun B. Pattern of drug use in Addis Ababa community. *East Afr Med J* 1997; 74:362-7.
- Osaka R, Nanakorn S. Health care of villagers in northeast Thailand — a health dairy study. *Kurume Med J* 1996; 43:49-54.
- Geissler PW, Nokes K, Prince RJ, Achieng RO, Aagaard-Hansen J, Ouna JH. Children and medicines: self-treatment of common illnesses among Luo schoolchildren in western Kenya. *Soc Sci Med* 2000; 50:1771-83.
- Zhang X. Integration of traditional and complementary medicines into national health care systems. *J Manipulative Physiol Ther* 2000; 23:139-40.
- Sciafer J, Samet LS, de Visscher G. Appropriateness of self-medication: method development and testing in urban Indonesia. *J Clin Pharm Ther* 1997; 22:261-72.
- Oranga HM, Nordberg E. A longitudinal health interview survey in rural Kenya: potentials and limitations for local planning. *East Afr Med J* 1995; 72:241-7.

Combined Scientific Meeting in Anaesthesiology 2003

“In Conjunction with the Fourth Congress of the Asian Oceanic Society for Intravenous Anaesthesia”

26 - 28 September 2003

Name : Combined Scientific Meeting in Anaesthesiology 2003
 Date : 26 - 28 September 2003
 Theme : Pharmacology from Bench to Bedside
 Venue : Sheraton Hong Kong Hotel & Towers
 20 Nathan Road, Tsimshatsui, Kowloon, Hong Kong
 Secretariat : Ms Shirley Lam/Ms Sandy Chung
 Secretariat
 The Federation of Medical Societies of Hong Kong
 Tel: 2527 8898 Fax: 2866 7530
 Email:cos@fmskhk.com.hk