

RESEARCH ARTICLE

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Prevalence of Self-medication and its Associated Factors in a Hilly Community of Eastern Nepal: A Cross-sectional Study from Dhankuta

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Abstract

Background: Limited access to the health care facilities in hilly regions can lead to self-medication among the people. The purpose of this study is to estimate the prevalence of self-medication and its associated factors in a community of eastern Nepal. **Methods:** This cross-sectional study was conducted in three purposively selected VDCs of Dhankuta district. One family member above 16 years of age, preferably head of the family from 376 households were interviewed from November 2015 to December 2015. Data were collected by face-to-face interview using questionnaires which include sociodemographic characteristics, self-medication status, source of information and type of drug self-medicated, condition in which self-medication used. Binary and multiple logistic regression were used to find the association of self-medication with related variables. **Results:** The mean age of the participants was 40 (SD 14.6) years. A total of 264 (70.2%) participants practiced self-medication within 12 months. Among self-medicated drugs, the most common were paracetamol (83.7%) followed by other NSAIDs (56.4%) and cough remedies (28.4%). The common causes for self-medication were cough, fever and headache. Self-medication was found to be significantly associated with female, low education level, currently not married, less frequency of visiting doctor, acceptable perception about self-medication and self-medication among the family. **Conclusions:** This study showed that there was a high prevalence of self-medication in Dhankuta district of Nepal. The results suggest a need to aware patients on the appropriateness of self-medication.

Keywords: Self-medication, Anti-microbial resistance, health literacy, Nepal.

INTRODUCTION

WHO states that self-medication is a part of self-care and also includes non- drug self-treatment, social support in illness and first aid in everyday life [1]. WHO has advocated that appropriate and responsible self-medication can aid in economically managing any condition without professional consultation [1]. Self-medication is practiced widely in both developed and developing countries having more prevalence of self-medication and antibiotic misuse [2]. There are many benefits like wider availability of medicines, direct and rapid access to treatment, convenience along with risks like incorrect self-diagnosis, incorrect choice of therapy, drug side effects, drug interaction associated with use of self-medication [1].

Poly-pharmacy and excessive use of medicines that are relatively harmless can sometime result in adverse effect [3]. In hilly and terai belt local herbal medicines (herbs, shrubs and trees) are also frequently administered being easily

available and are mostly experimental [3]. In India, another south Asian nation economically and culturally similar to Nepal, pharmacists play a crucial role in cultivating the idea of self-medication [4]. Due to inaccessible healthcare facilities in certain parts of Nepal, self-medication comes in convenience and priority. Department of Drug Administration started pharmaco-vigilance program in 2002 in order to monitor the drug use and its adverse effects in Nepal [5].

In a study done among 142 respondents in Pokhara, 59% of these respondents had taken some form of self-medication in the 6-month period preceding the study [6]. There are very less studies performed in general population with regards to self-medication especially in hilly areas of Nepal. Hence, this study was conducted in Dhankuta Municipality of Eastern Nepal.

METHODS

Study area and population: This is a community-based cross-sectional study conducted in Dhankuta district. This study was carried out from December 2015 to February 2015.

Sample size calculation: This study considered 59% prevalence of self-medication in Western Nepal for sample size estimation [6]. It was calculated by using the formula, sample size (n) = 4PQ/L² as sample based on the prevalence of 59%, 95% confidence level and 10% allowable error. The required sample size was 371.

Data Collection:

Three VDCs were purposively selected viz. Hile, Pakhribas and Ghorlikharka representing urban, semi-urban and rural setting in Dhankuta. Out of 9 wards, 4 wards from each VDC were randomly selected and households proportionate to size in the respective VDCs were purposively selected until the sample size was reached. In each household, one family member above 16 years of age, preferably head of the family was interviewed. Data was collected by face-to-face interview using questionnaires which includes socio-demographic characteristics, self-medication status, type of drug self-medicated and condition in which self-medication used. The self-medication practice was inquired about by asking whether they have used any drug without prescription from a registered medical practitioner within 12 months. The economic status was dichotomized as “below poverty line”, which is per capita income of less than 1.25 dollars per day per person, and “above the poverty line”, with per capita income of greater than or equal to 1.25 dollars per day per person (1 US dollar = 102 Nepalese rupees).

Ethical Approval: The approval for the study was taken from Institutional Review Committee, B.P. Koirala Institute of Health Sciences. Written consent was obtained from the participants assuring the confidentiality.

Data Analysis: Data was entered in Microsoft excel and analyzed in Statistical Package of Social Sciences (SPSS) 17. Descriptive statistics was used to explore the characteristics of data by calculating frequency, percentage, mean and standard deviation. Binary logistic regression analysis was used to find out the association between self-medication and related categorical variables. Independent variables

significant at $p < 0.02$ were further analyzed with multiple logistic regression to determine the strength of association between the variables. The p-value less than 0.05 was considered as statistically significant.

RESULTS

A total of 376 households were included in the study with the mean age of the participants of 40.0 years (SD=14.6) ranging from 16 to 86 years. Majority of the participants (63.0%) were from rural areas while the remaining 37.0% were from urban areas. About 22.1% of the participants had received no formal education whereas 78% had some form of education (Table 1). Majority of the participants were agricultural workers (28.5%), followed by semi-professional (26.3%) workers while 2.9% and 21.5% of the participants were unemployed and housewives respectively.

Self-medication and its characteristics:

The prevalence of self-medication among the participants was 70.2% (Figure 1). A total of 33 participants always visit the doctor for any minor health problems which constitutes 8.8% while 13.0% never visit the doctor for any kind of minor health problems. Almost all participants who practiced self-medication in their household have influenced one or more members of the family to do the same that constitutes 63.65%. Out of those who self-medicated (n=264), an astonishing 83.71% self-medicated with NSAIDS, 28.4% people (75 out of 264) take cough remedies as self-medication. 10 (3.79%) reported of taking antibiotics (Table 2).

The leading cause of self-medication was found to be cough/cold (100%) followed by fever (89.39%) and headache (79.54%). Most of them i.e. 100 out of 264 people mentioned saving time as a reason for not consulting the doctors, 64 of them were residing at the place where doctors were not available. Interestingly, few of them had lack of trust in doctors and were reluctant to follow up. The most common reasons for self-medication were saving time, no need to consult doctors for minor illnesses, ease and convenience, pharmacy near the home, unavailability of doctors, and prior experience of the illness. Majority (70.5%) reported no side effect from self-medication, 20% experienced weakness, 8% dizziness, 6% fever and 5% headache.

Table 1: Sociodemographic status of the participants

Sociodemographic characteristics	Categories	Frequency(n)	Percent (%)
Age (in years)	≤25	64	17.0
	26-45	196	52.1
	46-65	95	25.3
	>65	21	5.6
Mean age in years ± SD (Min-Max)		39.95±14.61 (16-86)	
Gender	Male	182	48.4
	Female	194	51.6
Residence	Rural	237	63.0
	Urban	139	37.0
Marital status	Single	45	12.0
	Married	314	83.5
	Separated/divorced	3	.8
	Widowed	14	3.7
Occupation	Profession	30	8.0
	Semi-profession	99	26.3

	Agriculture	107	28.5
	Skilled worker	27	7.2
	Semi-skilled	4	1.1
	Unskilled	6	1.6
	Unemployed	11	2.9
	Student	10	2.7
	Housewife	81	21.5
	Retired	1	.3
Education	Illiterate	83	22.1
	Primary	51	13.6
	Secondary	180	47.9
	Higher secondary and above	62	16.5
Socioeconomic status	Below poverty line	229	60.9
	Above poverty line	147	39.1

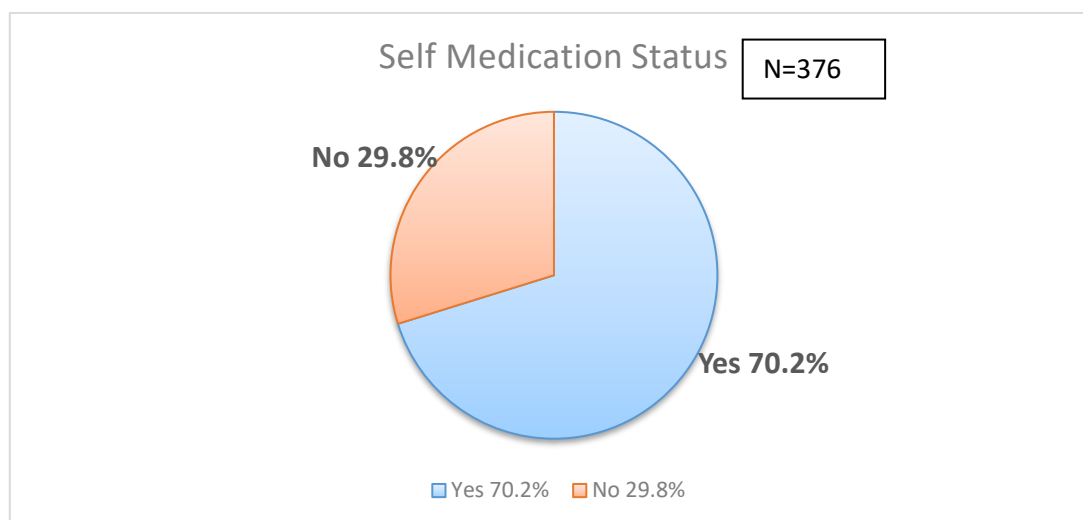


Figure 1: Self-medication status among the study population

Table 2: Distribution of participants on the basis of drug used for self-medication(n=264)

Type of Drug*	Frequency (n)	Percent (%)
Paracetamol	213	83.71
NSAIDs	149	56.44
Cough remedies	75	28.40
Anti-acidity drugs	65	24.62
Vitamins	16	6.06
Eye/ear drop	3	1.14
Anti-diarrheal	32	12.12
Antibiotics	10	3.79
Ayurvedic	12	4.54
Others	2	0.75

*Multiple responses

Table 3: Association of self-medication with other variables.

Variables	Categories	Self-medication		Binary logistic regression (p-value)	Multiple logistic regression (p-value)
		Yes n (%)	No n (%)		
Gender	Male	121 (66.5)	61 (33.5)	Ref	Ref
	Female	143(73.7)	51 (26.3)	0.126	0.028
Age	<45 years	175 (72.3)	67 (27.7)	0.241	
	>= 45 years	89 (66.4)	45 (33.6)	Ref	
Residence	Rural	164 (69.2)	73 (30.8)	0.574	
	Urban	100 (71.9)	39 (28.1)	Ref	
Occupation	Agriculture worker	73 (68.2)	34 (31.8)	0.595	
	Employed	117 (70.5)	49 (29.5)	0.919	
	Unemployed/students/house wife	74 (71.8)	29 (28.2)	Ref	
Education	Illiterate	61 (73.5)	22 (26.50)	Ref	Ref

	Primary	35 (68.6)	16 (31.4)	0.790	0.786
	Secondary	134 (74.4)	46 (25.6)	0.086	0.079
	Higher secondary and above	34 (54.8)	28 (45.2)	0.004	0.989
Marital	Single/Separated/Divorce	50 (80.6)	12 (19.4)	Ref	Ref
	Currently married	214 (68.2)	100 (31.8)	0.049	0.038
Family type	Nuclear	188 (69.9)	81 (30.1)	Ref	
	Joint	76 (71.0)	31 (29.0)	0.827	
Economic status	Below poverty line	158 (69.0)	71 (31.0)	Ref	
	Above poverty line	106 (72.1)	41 (27.9)	0.519	
Frequency of visit to health professionals	Always/Often	78 (57.8)	57 (42.2)	<0.001	0.858
	Sometimes	150 (78.1)	42 (21.9)	0.001	0.335
	Rarely/Never	36 (73.5)	13 (26.5)	Ref	Ref
Perception on self-medication	Good	14 (77.8)	4 (22.2)	0.472	0.208
	Acceptable	195 (85.9)	32 (14.1)	<0.001	<0.001
	Unacceptable	55 (42.0)	76 (58.0)	Ref	Ref
Self-medication among any member	Yes	224 (93.7)	15 (6.3)	<0.001	<0.001
	No	40 (29.20)	97 (70.8)	Ref	Ref

Self-medication and related variables:

In bivariate analysis, age, gender, residence, family type and occupation were not associated statistically with self-medication practice among the participants. The participants with education of higher secondary and above were found to have less self-medication practice as compared to illiterate (54.8% VS 73.5% and this was found to be statistically significant ($p= 0.004$). Currently married participants were found to have less self-medication practices than single/divorced/separated (68.2% VS 80.6%) and this finding was statistically significant in both bivariate ($p=0.049$). Participants who always/often and sometimes visited the doctor were found to have lower self-medication practice than the participants who rarely visited doctors (57.8% VS 78.1% VS 73.5%). This difference was found to be statistically significant ($p<0.001$). The participants who had acceptable perception on self-medication were self-medicating (85.9%) more than the participants who had unacceptable perception (42%). It was found to be statistically significant ($p<0.001$).

Those participants whose families practiced self-medication were found to be practicing self-medication more than those whose family members did not (29.2 % VS 93.7%). This difference was found to be statistically significant ($p<0.001$). However, in multivariate analysis, gender, marital status, medical visit, perception and self-medication among the family members were found to be associated with the individual's self-medication practices.

DISCUSSION

In our cross-sectional study performed in Dhankuta district, a total of 70.2% respondents were found practicing self-medication during preceding one year. We have variable prevalence available from the study done in Nepal. 59% in Western Nepal among general population [6], 58 % among students in Kathmandu [7], 48.3% in Eastern Nepal, among medical student [8], 81.35% among preclinical students from Pokhara [9], 50.7 % (antibiotic self-medication) among nursing students [10]. The study done in Nepal so far is mostly clustered among group of students and very few done in general population. The differing prevalence may be due to the group of participants. The students of university and medical school will have better knowledge compared to the

general public in our study. The other reason may be our study considered self-medication within 12 months. Also, self-medication is also encouraged by non-availability of doctors and health professionals in local community. Distance of health services contributes to use of self-medication. The doctor-patient ratio is very low in Nepal [11]. The Himalayan terrain in Nepal and its ever changing political landscape adds up to the challenges in health delivery and improvement of infrastructure in Nepal [12].

The other data on prevalence ranges from 40.7% in Jordan (antibiotics self-medication) [13], 47.6% in Pakistan [14], 56% in Abu Dhabi (antibiotic self-medication) [15], 73.3% in Sudan [16], 83% in Iran [17] to as high as 88% [18], 88.18% in India [19]. Due to differing geography, socio economic profile, demography, literacy and availability of health services among the population studied, it was difficult to compare the results. The variation in prevalence may be due to such corresponding factors. The time duration considered in different studies was variable which accounts for variable recall period.

The majority of respondents (60.9%) were below poverty line. This could be due to the geographical location of the study. The impacts of socio-economic status in practice of self-medication were not surveyed but it can be researched further as low socio-economic status is a barrier to access of health care. The higher prevalence in our study could be accounted also to the economic status of participants. In our study headache, fever, cold and cough remained the most common causes for self-medication which is similar to studies in Nepal [6, 7, 20] and in India [19]. People have headache, fever on a regular, recurrent basis which shows that one of the most common reasons for self-medication is past experience of similar illness. In our study, the most common type of drug used for self-medication in last 12 months was paracetamol followed by NSAIDs, however the prevalence of antibiotics used was found to be very low which remained similar to study done in Pokhara. [6] However studies from Karachi [14], Abu Dhabi [15], point to a trend of self-medication with antibiotic being used for complaints of headache, fever and sore throat. Paracetamol is cheap and easily available which may account for its maximum use for self-medication. The prevalence of

antibiotic use in our study is lower which may be due to less knowledge or access to it. It is, hence, wise to recommend increasing the knowledge on drugs commonly used for self-medication in general public. Substantial variation in the prevalence rate of antimicrobial drug self-medication suggests that socio-economic factors play a role, as do disparities in health care system such as access to health care and drug dispensing policies. Pharmacy was found to be the most common source of medicine as shown in studies from Pokhara [6], Jordan [21], Gujarat [18] showing that in other South Asian countries and even developed countries, self-medication was propagated by the pharmacists.

Association between self-medication and related variables

In our study performed in Dhankuta district, we found association between gender and self-medication; female were self-medicating more as compared to male, which is similar to findings in Iran [17] and Sudan [16]. In contrast to our study, a study revealed males significantly higher than females in self-medicating [6]. The reason may be females have more medical issues especially with their reproductive health. One of the study from Pokhara found association with gender and group of drug used for self-medication [9].

In our study we found no association between age and self-medication. Similar results were found in nursing students of Nepal [10]. However, some studies revealed significant association with age in Jordan, in Sudan and in UAE [13,15,16]. In our study, we found association between education and self-medication; participants with higher education self-medicated less than the illiterate population. This was in contrast to other studies done in UAE, in Iran, in Sudan and Jordan [13,15-17]. The reason may be the geographical disparities and the fact that higher educated people have better knowledge regarding adverse effects of self-medication. In our study, currently married participants practiced less self-medication than not married, which is similar to another study [17]. The reason may be the partner's influence in seeking medical care in case of currently married individuals.

We found that the participants who visited doctors self-medicate significantly less than those who rarely visit doctors. This could be because the participants who visited doctor have better idea of seeking care and they may also have better access to the medical facility. In case of those who rarely visit, they may have been using leftover medications from previous illness. The participants who perceived self-medication acceptable were practicing it significantly higher. The participants from a family which

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does not practice self-medication also do not self-medicate on themselves. This can be because family's influence may affect the pattern of self-medication.

Awareness regarding self-medication to the general population needs to be advocated. Self-medication comes with risks and benefits, and proper regulation may help in minimizing risk. This study can help us make evidence-based policies in proper use of self-medication among the communities. Educational interventions make the patient conscious about the potential risk in use of over-the-counter medications and the importance in disclosing the priority in over-the-counter medicines or other expert consultation.

There is some limitation in this study. First, the study is affected by recall bias over a period of one year. It does not establish causal relationship among the variables as the study is cross-sectional type. Since this study is done only in one hilly region, cannot be generalized.

CONCLUSION

This study showed higher prevalence of self-medication among residents of hilly region of Nepal which is in line with other research conducted on self-medication status. Although majority of participants were consuming NSAIDs, few participants also admitted to taking antibiotics. Low education level, lack of health care facilities nearby was some of the reasons cited by the participants for self-medication. Government should prioritize health resources and budget allocation to rural and underprivileged areas. Over-the-counter drugs and antibiotics were being made available by the pharmacists. This scenario should be kept on check and balance by the concerned body. The finding necessitates for effective legislation to control it at a pharmacy level and promulgating awareness to the general public regarding risks and benefits of self-medication.

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CONFLICT OF INTEREST:

The authors declared that they have no conflict of interest.

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