



(RESEARCH ARTICLE)



Self-medication practice among residents of Madhyapur Thimi-4, Bhaktapur, Nepal

Mijala Bajracharya *, Ambika Shrestha and Deepti Piya Baniya

Department of Pharmacy, Manmohan Memorial Institute of Health Sciences, Soalteemode, Kathmandu, Nepal.

Magna Scientia Advanced Biology and Pharmacy, 2023, 09(01), 054–070

Publication history: Received on 28 April 2023; revised on 07 June 2023; accepted on 10 June 2023

Article DOI: <https://doi.org/10.30574/msabp.2023.9.1.0041>

Abstract

Background: Self-medication is the treatment of self-diagnosed symptoms or conditions with medicines taken on own initiative without professional supervision. Though self-medication reduces the burden to the health care facilities, save time etc. it increases the risk if utilized inappropriately.

Objectives: This study was done with the aim to determine self-medication practices among residents of Madhyapur Thimi Municipality ward number 4, Bhaktapur, Nepal.

Method: A descriptive cross sectional study was used and non-probability purposive sampling technique was adopted. Study was conducted in Madhyapur Thimi-4 in Bhaktapur district with sample size of total 309 community people of age 20 to 60 years. Data was collected by interview with the help of semi structured questionnaire and was analyzed by using descriptive and inferential statistics.

Results: Out of 309 participants, 215(69.6%) community people practiced self-medication with one's past experience 88(40.7%) as the most common source of information. Most commonly used medicine was NSAID 63(29.3%) followed by decongestant 30(13.9%). Medicines were self-prescribed for headache 49 (22.7%), fever 37(17.2%), cold and flu 30(13.9%) with the aim to save the time and for quick relief 50(23.6%). Practice of self-medication was statistically significant with age of respondents ($p=0.000$), level of education ($p=0.004$) and type of family ($p=0.009$).

Conclusion: The practice of self-medication was common for different illness like headache, fever, diarrhea etc and most commonly self medicated medicine was NSAID.

Keywords: Self-medication; Community; NSAID; Headache; Fever

1. Introduction

Self-medication is the use of the medication for the management of the common health problems significantly practices worldwide [1]. According to WHO, "Self-medication is the use of medication without consulting the medical practitioner by the individual self for the self-recognized symptoms and illness". It is considered to be the important aspect of self-care [2].

In spite of curiosity in research field of self-medication the factors affecting remains the issue of debate. Not much information about the major determinants is known. Certain studies on self-medication shows that it is influenced by factors like level of education, family, society, gender, age, socioeconomic status, access to healthcare facilities, availability of drugs and so on [3].

*Corresponding author: Mijala Bajracharya

It was found media exposure and increase in promotion of the pharmaceutical product as threat to this population as they were using at least one of the product without consulting the practitioner. Another causes were found to be their earlier incident of medication, time saving, mild sickness, no availability of doctors, and urgency of the problems, short period of time to visit doctor and as per direction of friends [4].

Self-medication is considered to have positive impacts such as reduction in work load of the medical services, participation in self-care on relieving and preventing minor condition and symptoms, decrease in time spent waiting to visit doctor and the opportunity to get knowledge. However the dangers such as possibility of dependence and misuse, allergic reactions, increase in resistant to pathogen, drug food interactions, misguidance in self-diagnosis cannot be overlooked [5].

Community pharmacy professional can play important role to reduce the irrational use of medication through various health informative programs on medicine to the general public [6].

Self-medication pattern vary among different population and are influenced by various features such as age, gender, income and expenditure, self-care orientation education level, knowledge on medicine, satisfaction and non-seriousness to illness.

Since self-medication is not influenced by only the individual belief and knowledge of people but also sociodemographic factor and economic factors, it is required to identify the contributing factors. Those data are still limited in Nepal.

Self-medication is becoming an increasingly common practice of health care in both developing and developed countries with over 50% of the antibiotic purchasing and using over the counter [7].

The rate of prevalence is higher in developing country with 92% in adolescent of Kuwait, 68% in European countries and 57% in USA. The prevalence of self-care and self-medication is 51% in Pakistan and 31% in India [8].

In developing country like Nepal, the medicines are readily available in pharmacy without any prescription from medical personnel that may sometime lead too many disadvantages such as wastage of resources, prolonged suffering, and drug dependency due to consumption of excessive medicine without actual identification of symptoms or disease [9].

The necessities of the research arises from the circumstances that information related to self-medication practice among community people is lacking in Nepal. Self-medication is normally practiced in Nepal due to absence of access to health care facilities, easy availability of medicine and comparatively higher prevalence of infectious diseases that emerge time to time.

In Nepal very less study has been conducted related to self-medication and evidence are not documented properly. It is essential to access the practice of self-medication among the residents of community. This study aims to evaluate the practice of self-medication among community people and their knowledge regarding self-medication.

The study will help to identify the drugs commonly used and highlight the major reasons of self-medication among community people. It is important to have standard data on drug familiar in this population to plan the future intervention and should be documented properly.

The finding from this study will act as an important tool to the policy maker to prepare and formulate long term plan of action in managing the appropriate use of medicine and formulate the strict rules and regulation regarding use of OTC medicine along with prescription medicine. It will help for further research programs also.

1.1. Research Objective

1.1.1. General objective

- To find out self-medication practices among residents of Madhyapur Thimi-4, Bhaktapur.

1.1.2. Specific objective

- To determine most common medicines used for self-medication
- To analyze the reasons for self-medication
- To measure association of respondents' practice of self-medication and demographic variables.

2. Material and methods

2.1. Type of study: Quantitative study

- Research method: Descriptive Cross-sectional study
- Research Study Site: Madhyapur Thimi-4, Bhaktapur, Nepal

2.2. Sampling method and Sampling size

- Sampling method: Non-probability purposive sampling.
- Sampling size: Sample size for the study was calculated using Cochran formula which is given as:

$$n = \frac{z^2 pq}{L^2}$$

Where,

n=sample size

z=value of the standard normal variants at 95% level of confidence= 1.96

p=prevalence or proportion of an event= 44.04% 17

q=1-p

L=allowable error 5%=0.05

Now, $n = \frac{z^2 pq}{L^2} = 368$

- Sample size = 368

2.3. Criteria for sample selection:

2.3.1. Inclusion criteria:

- Residents of community aged 20 years and above
- Respondents who understands Nepali language
- Respondents who are willing to participate

2.3.2. Exclusion criteria:

- Respondents who are not willing to participate
- Respondents who cannot provide information and are in emergency situation

2.4. Data Collection Instrument

A semi- structured questionnaire was used for data collection.

2.5. Data Collection Procedure

Prior to data collection approval of research proposal was obtained from the research committee of MMIHS. Official request letter was submitted to administrative office of Madhyapur Thimi-4. Self-introduction and the purpose of research study were explained and formal permission for data collection was obtained from the ward office. Verbal and written consent was taken from the respondents by explaining the objectives before data collection. Duration of interview of each respondent was 20 to 25 minutes and data was collected over 3 months of period.

2.6. Data analysis

Completeness and consistency of the collected data was checked. After finishing data collection all the data were rechecked, edited, classified and coded. Coding was done and entered in SPSS 16 version. The data was then tabulated and analyzed by using descriptive and inferential statistical method. Interpretation of the study was done based on analyzed data

3. Results

This chapter includes the systematic presentation of the findings obtained from 309 adults from Madhyapur Thimi-4, Bhaktapur. The data was edited, coded and analyzed using SPSS 16. The data was analyzed according to the research

objectives using descriptive and inferential statistics. Descriptive statistics (frequency, percentage, mean and standard deviation) was used to describe the socio demographic variables and practice of self-medication. Chi-square test was used to identify the association between the dependent and independent variables.

3.1. Sociodemographic characteristics of the respondents(n=309)

Highest number of respondents (30.7%) belonged to age group 21-30. (52.4%) were male and (47.6%) were females.

Table 1 Socio-Demographic Characteristics of the Respondents (Age, Gender)

Characteristics	Number	Percent
Age (in years)		
21-30 years	95	30.7
31-40 years	94	30.4
41-50 years	51	16.5
51-60 years	69	22.3
Mean (\pm SD)36.64(\pm 11.58)		
Gender		
Male	162	52.4
Female	147	47.6

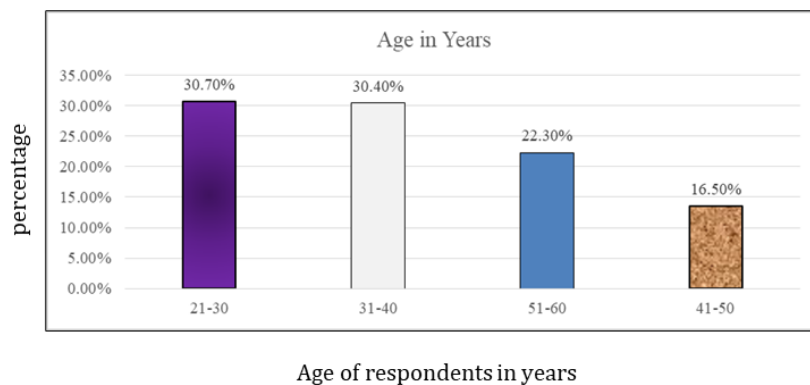


Figure 1 Age of Respondents

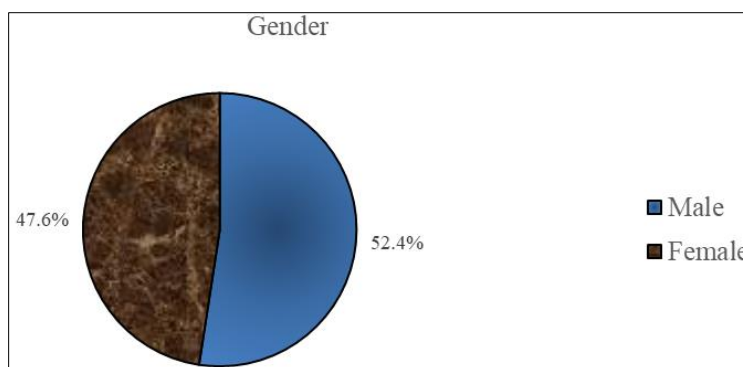


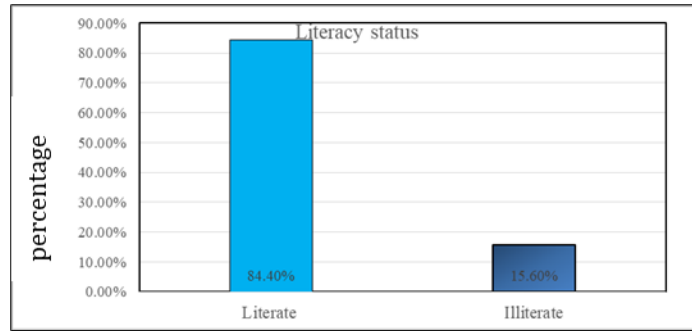
Figure 2 Genders of Respondents

3.2. Socio-Demographic Characteristics of the Respondents (literacy status, level of education, occupational status, Income of family and type of family)(n=309)

Among total respondents only (15.6%) respondents are illiterate and (84.4.3%) are literate among which (31.1%) had educational status of Bachelor and only (9.7%)had informal education. 23.3%respondents are involved in business, and 12.9%are housemakers. Similarly more than fifty percentage of respondents (66.7%)had food adequacy for less than 6 months and (33.3%) for 6 months to 1 years. (54.4%) respondents reside in joint family and (46.6) in nuclear family

Table 2 Socio-Demographic Characteristics of the Respondents (literacy status, level of education, occupational status, Income of family and type of family)

Characteristics	Frequency	Percentage %
Literacy status		
Literate	216	84.4
Illiterate	48	15.6
Level of education (n=216)		
Informal education	30	9.7
Below SLC	37	12.0
Intermediate	98	31.7
Bachelor and above	96	31.1
Occupational status		
Agriculture	51	16.5
Housemaker	40	12.9
Business	72	23.3
Service	55	17.8
Students	55	17.8
Others	36	11.7
Income of Family		
Adequate for less than 6 months	206	66.7
Adequate for 6 months -1 years	103	33.3
Type of family		
Nuclear	141	45.6
Joint	168	54.4



Literacy Status of Respondents

Figure 3 Literacy Status of Respondents

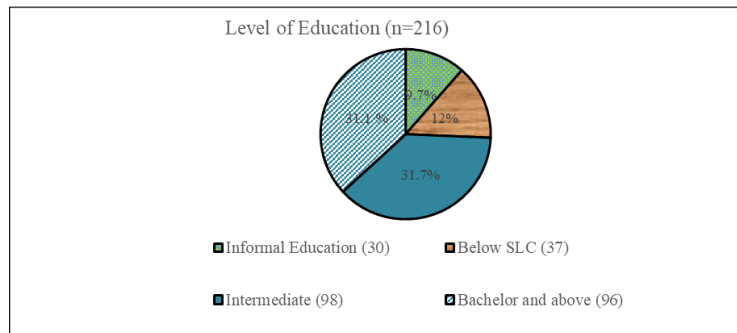
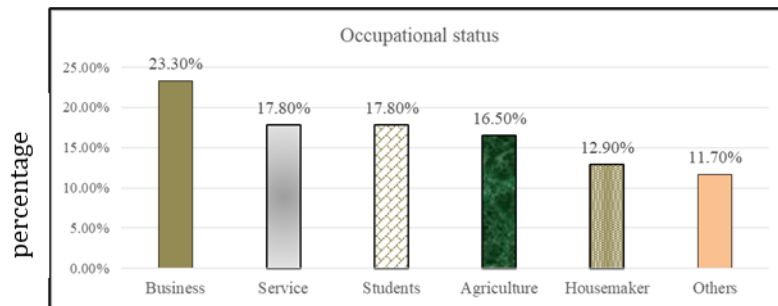


Figure 4 Level of Education of Respondents



Occupational status of Respondents

Figure 5 Occupational status of Respondents

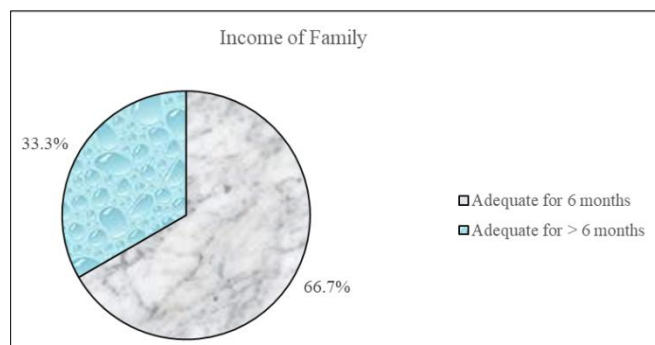


Figure 6 Income of family

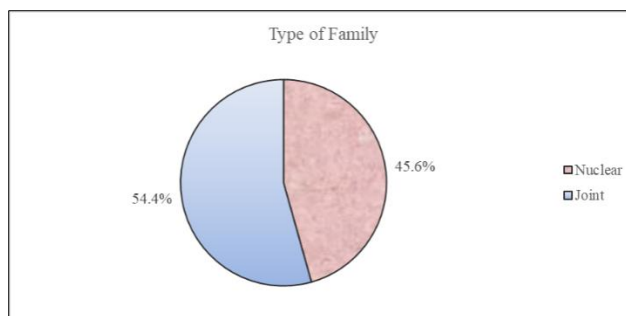


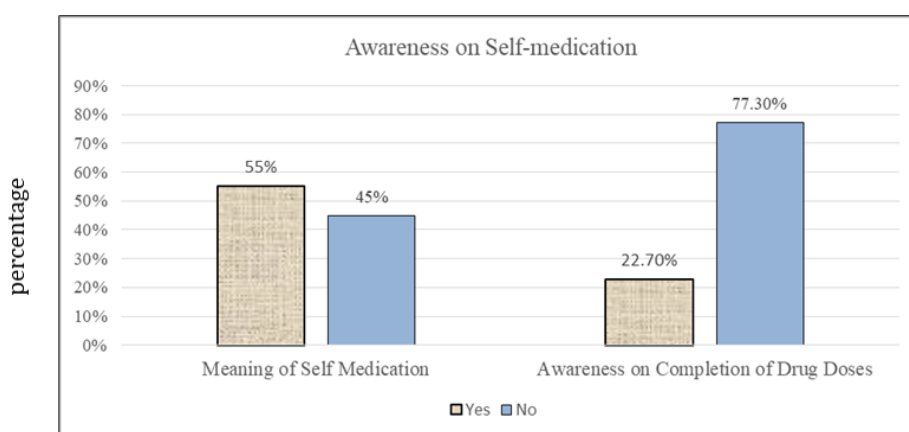
Figure 7 Type of Family

3.3. Respondent’s knowledge/awareness regarding Self-medication (Meaning of self-medication and awareness on completion of drug doses)(n=309)

More than fifty percent (55%) of the respondents are aware about meaning of self-medication but only (22.7%) had knowledge about completion of drug doses.

Table 3 Respondent’s knowledge/awareness regarding Self-medication (Meaning of self-medication and awareness on completion of drug doses)

Variables	Frequency	Percentage (%)
Meaning of self-medication		
Yes (taking medication without consulting physician)	170	55.0
No (taking medication after prescription from physician)	139	45.0
Awareness on completion of drug doses		
Yes	70	22.7
No	239	77.3



Awareness of respondents on self medication

Figure 8 Awareness on Self-medication

3.4. Respondent’s Practice of Self-medication and type of medicine consumed by the respondents (n=309)

Out of 309 respondents, 215 (69.6%) respondents take medicine without consulting doctors/ prescription and among them more than ninety percent (96.3%) consume allopathic medication and only (3.7%) consume herbal medicine

Table 4 Respondent’s Practice of Self-medication and type of medicine consumed by the respondents

Variables	Frequency	Percentage (%)
Taking medicine without consulting doctor/prescription		
Yes	215	69.6
No	94	30.4
Type of medicine consumed (n=215)		
Allopathic	207	96.3
Herbal	8	3.7

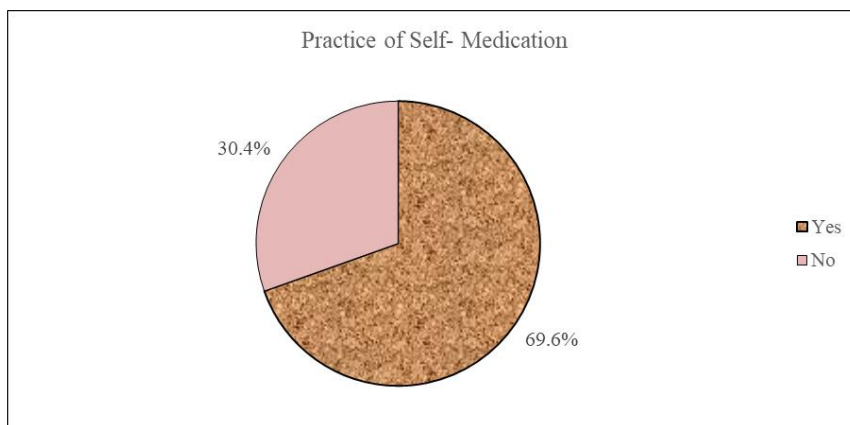


Figure 9 Practice of Self-Medication

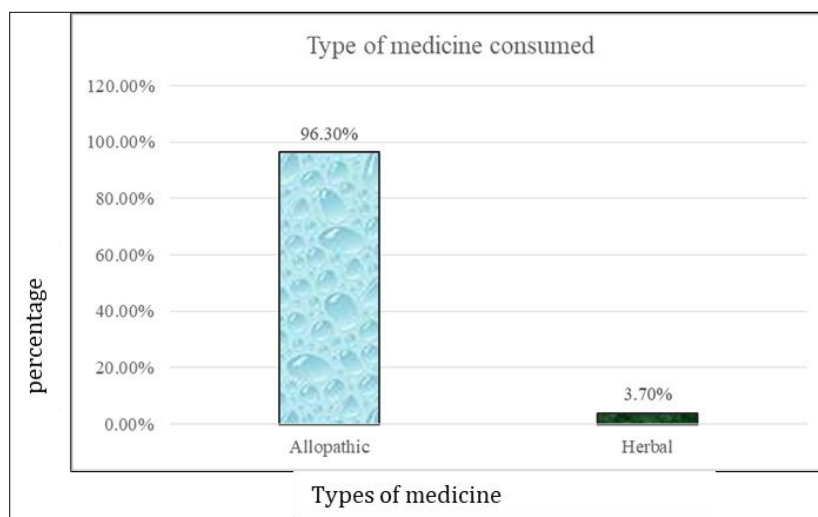


Figure 10 Medicine consumed by respondents

3.5. Respondent’s (Practicing Self-medication) Reason for practicing Self-medication (n=215)

Most of the respondents (46.3%) practicing self-medication practices self-medication for saving time followed by quick relief (23.6%), high cost on visiting doctor (20.4%) and others (9.7%).

Table 5 Respondent’s Reason for practicing Self-medication

Variables	Frequency	Percentage (%)
Reasons for practicing self-medication Saving time	100	46.3
Quick relief	50	23.6
High cost on visiting doctor	44	20.4
Others	21	9.7

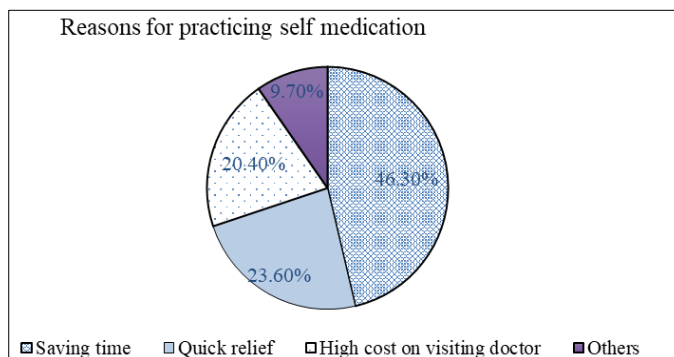


Figure 11 Respondent’s reasons for practicing Self-Medication

3.6. Respondent’s (Self-medication not Practicing) Reason for not practicing Self-medication(n=94)

Chronic disease condition is the reason holding highest percentage (47.4%) which is followed by fear of wrong diagnosis of disease (28.0%), fear of side effects (15.8%) and least fear of using wrong medication (6.3%).

Table 6 Respondent’s Reason for not practicing Self-medication

Variables	Frequency	Percentage (%)
Reasons for not practicing self-medication Chronic disease condition	45	47.4
Fear of wrong diagnosis of disease	28	28.0
Fear of side effects	15	15.8
Fear of using wrong medication	6	6.3



Figure 12 Respondents reasons for not practicing Self-Medication

3.7. Respondent’s (Practicing Self-Medication) Source of information about Self-medication Practice(n=215)

Maximum respondents 40.7% get information through their own experience whereas only 5.30% get information through media/internet

Table 7 Respondent’s (Practicing Self-Medication) Source of information about Self-medication Practice

Variables	Frequency	Percentage (%)
Source of Information about Self-medication practice		
One’s past experience	88	40.70
Pharmacist	69	32.00
Friends, Family and Neighbor	48	22.00
Media/Internet	11	5.30

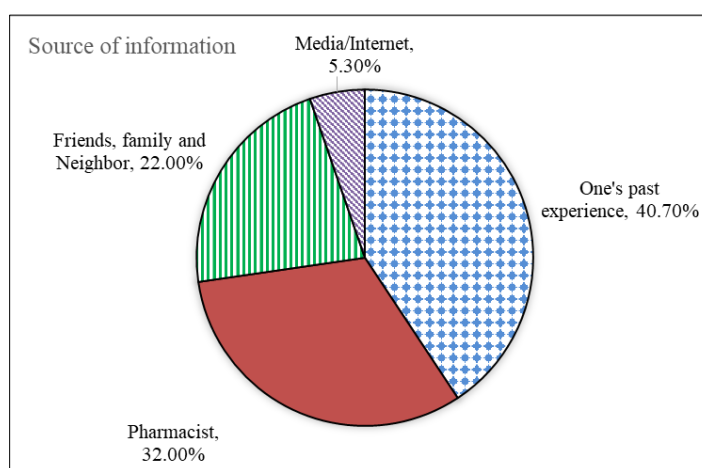


Figure 13 Source of Information about Self-medication Practice

3.8. Respondent’s (Practicing Self-Medication) Source of drug for Self-medication(n=215)

Most of these respondents 108 (50.0%) buy medicine from pharmacy followed by 77 (35.6%) used leftover medicines and 30 (14.4%) participants uses drugs provided by friends, family and neighbor for self-medication

Table 8 Respondent’s (Practicing Self-Medication) Source of drug for Self-medication

Variables	Frequency	Percentage (%)
Source of Drugs for Self-medication		
Pharmacy	108	50.00
Left over medicine	77	35.60
Friends, Family and Neighbor	30	14.40

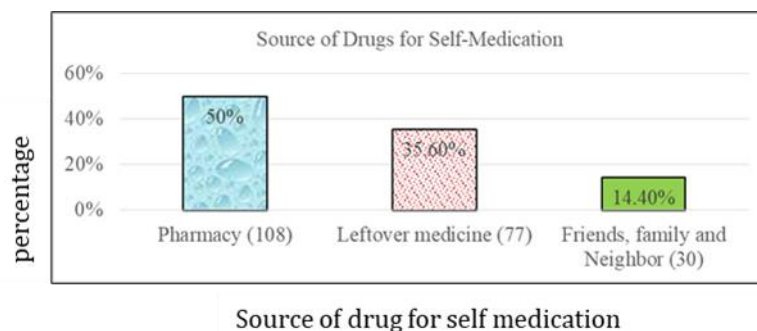


Figure 14 Source of Drugs for self-medication

3.9. Respondent’s (Practicing Self-Medication) responses regarding awareness about medicine expiry and symptoms relief after self-medication

(87.9%) respondents check medicine expiry date before use. (86.6%) has improvement of their symptoms after self-medication while (13.4%) has complain of side-effects with (39.2%) abdominal pain, (32.1% nausea/vomiting, (17.8%) diarrhea and (10.9%) dizziness following self-medication.

Table 9 Respondent’s (Practicing Self-Medication) responses regarding awareness about medicine expiry and symptoms relief after self-medication

Variables	Frequency	Percentage (%)
Check medicine expiry date		
Yes	189	87.9
No	12	12.1
Relief of symptoms		
Yes	187	86.6
No	28	13.4
If No: side effects n=28		
Abdominal pain	11	39.2
Nausea /vomiting	9	32.1
Diarrhea	5	17.8
Dizziness	3	10.9

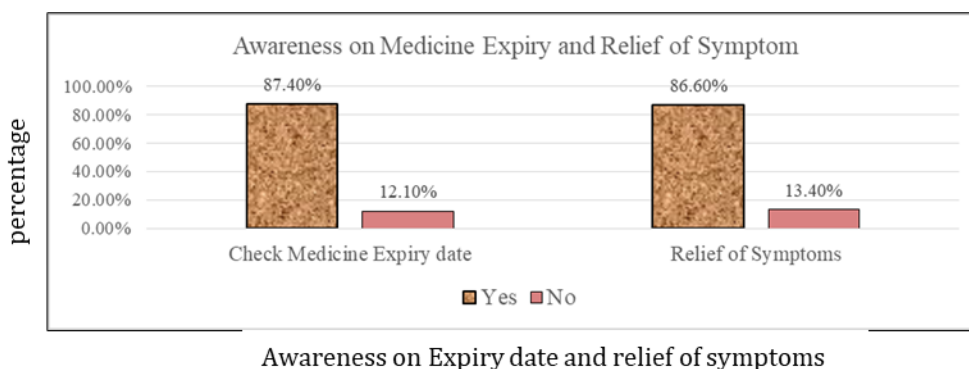


Figure 15 Respondents awareness on medicine expiry and relief of symptoms after self-medication

3.10. Respondent's (Practicing Self-medication) physiological condition for practicing self-medication (n=205)

It shows that (22.7%) headache is the most common condition for self-medication, followed by (17.2%) fever, (13.9%) cough and cold, (8.8%) gastritis and by (3.2%) period pain

Table 10 Respondent's (Practicing Self-medication) physiological condition for practicing self-medication

Variables	Frequency	Percentage (%)
Physiological Conditions for self-medication		
Headache	49	22.7
Fever	37	17.2
Cough and cold	30	13.9
Gastritis	19	8.8
Diarrhea	17	7.9
Allergy	13	6.0
Muscle pain	10	4.6
Toothache	10	4.6
Nausea and vomiting	8	3.7
Period pain	7	3.2
Others	15	6.9

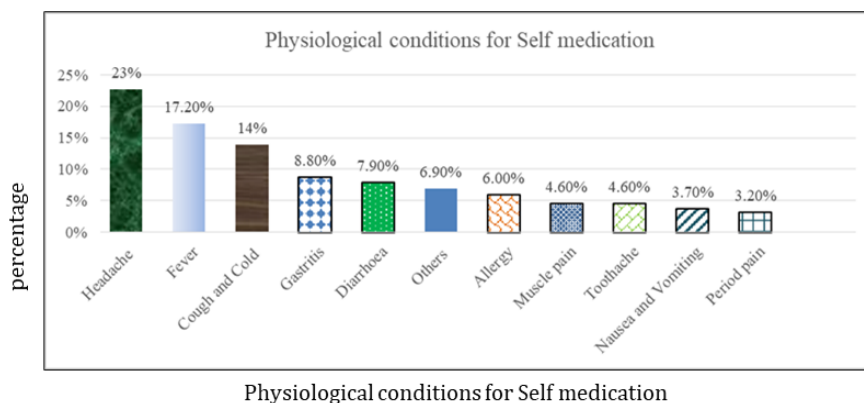


Figure 16 Respondent's physiological conditions for Self-medication

3.11. Pharmacological division of drugs used by Respondent's (Practicing Self-medication) for self-medication(n=205)

Maximum respondents 29.3% uses NSAIDs (analgesic and analgesic) for self-medication followed by decongestant 13.9% Antitussive 10.2% and least 3.7% uses antiemetic and antibiotics.

Table 11 Pharmacological division of drugs used by Respondent’s (Practicing Self-medication) for self-medication

Variables	Frequency	Percentage (%)
Pharmacological division of drugs used for self-medication		
NSAIDs	63	29.3
Decongestant	30	13.9
Antitussive	22	10.2
Antacids	19	8.8
Antidiarrheal	17	7.9
Vitamins	15	6.9
Anti-allergic	13	6.4
Antispasmodic	10	4.6
Antiemetic	8	3.7
Antibiotic	8	3.7
Others	10	4.6

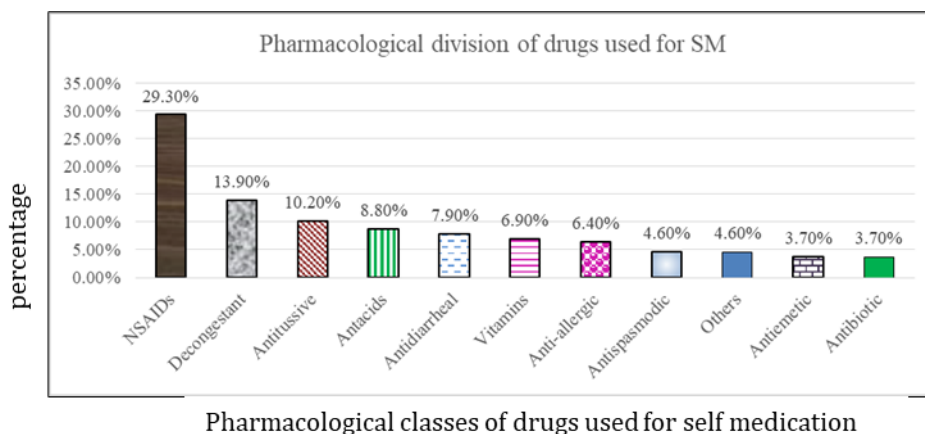


Figure 17 Pharmacological division of drugs used for Self-medication by respondents

3.12. Respondents Attitude toward Self-medication n=309

63.8% respondents thinks that Self-medication is not safe whereas only 3.2% thinks that same medicine can be remedy and poison. 49.5% thinks that self-medicated medicine can interact with other medicine/food.

Table 12 Respondents Attitude toward Self-medication

Statements	Frequency (Percentage %)		
	Yes	No	Don't Know
Self-medication is safe	62 (20.1)	197(63.8)	50(16.2)
Same medicine can be remedy and poison	163(52.8)	10(3.2)	136(44.0)
Self-medicated medicine can interact with other medicine/food	153(49.5)	16(5.2)	140(45.3)
Self-medication can be prevented by doctor patient relationship	219(70.9)	25(8.1)	65(21.0)

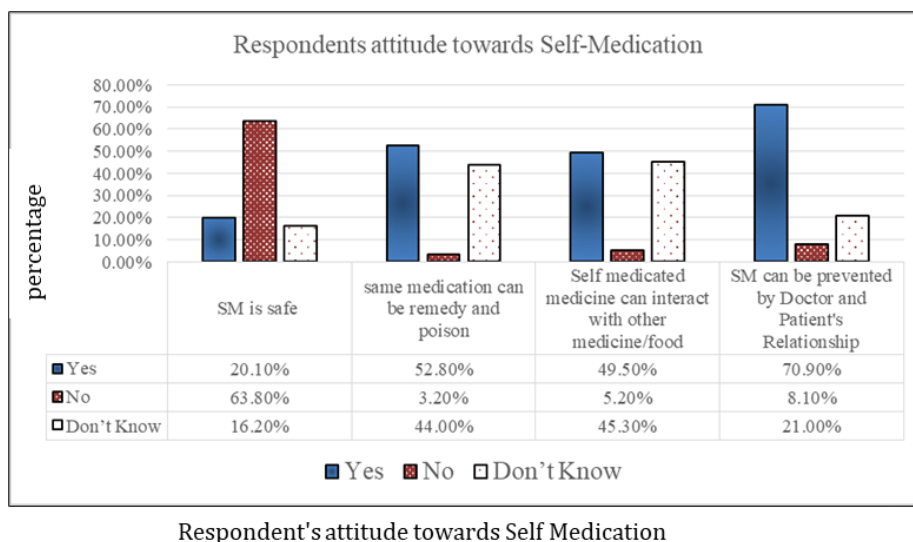


Figure 18 Respondents attitude towards Self-medication

3.13. Association of Respondent's Practice of Self-Medication with Selected Demographical Variables

The practice of self-medication is statistically significant with age of respondents ($P=0.000$), level of education ($P=0.004$) and income of family ($P=0.009$). Whereas statistically insignificant with gender ($P=0.423$), marital status ($P=0.084$) and type of family ($P=0.440$).

Table 13 Association of Respondent's Practice of Self-Medication with Selected Demographical Variables $n=309$

Variables	Practice of Self-Medication		X ²	P-value
	Yes	No		
Age				
21-40	148 (78.3%)	41 (21.7%)	17.514	0.000
41-60	53 (44.2%)	67 (55.8%)		
Gender				
Male	101(68.7%)	46(31.3%)	0.101	0.423 ^{ft}
Female	114(70.4%)	48(29.6%)		
Level of Education				
Illiterate	25(52.1%)	23(47.9%)	8.218	0.004 ^{ft}
Literate	190 (72.8%)	71(27.2%)		
Income of family				
Adequate for 0-6 months	134(65.0%)	72(35.0%)	5.993	0.009 ^{ft}
Adequate for > 6 months	81 (78.6%)	22(21.4%)		
Type of Family				
Nuclear	97(68.8%)	44(31.2%)	0.75	0.440
Joint	118(70.2%)	50(29.8%)		

4. Discussion

In this community based cross sectional study 309 participants were taken from Madhyapur Thimi ward No. 4 of Bhaktapur district. Self-medication is common in developing countries where it has both economic and social implications [11].

Of 309 participants, 215 (69.6%) community people were practicing self-medication without doctor's prescription and among them 207 (96.3%) preferred allopathic medicine and 18 (3.7%) uses herbal medicines. This result was similar to study done in Pokhara, Nepal; urban areas of Eastern Ethiopia and urban and rural districts of Sri-Lanka [3, 6, and 10].

In the present study, most common source of information was participants own past experience 88 (40.7%) followed by pharmacy professionals 69 (32.0%). Whereas study conducted by Mamo.S, Ayele.Y and Deschasa .M, most common source of information was pharmacy professionals followed by self- decision [6]. Similarly in Eastern countries, the major source was pharmacy followed by left over medication [12]. The difference may be due to difference in socio-cultural background of participants residing in different region.

Regarding category of drugs used for self-medication among the participants practicing self-medication, NSAIDs (analgesic, antipyretic) 63(29.3%) were most commonly used drug followed by antidiarrheal 17(7.9%), antibiotics 8(3.7%) and anti-allergic 16(7.4%). Similar finding was observed in Indore where analgesic and antipyretic were most commonly used class of drugs [8]. Headache 49(22.7%), fever 37(17.2%) and GI problem (diarrhea and gastritis) were the most common conditions for practicing self-medication among the respondents in this study. And similar responses were observed in the studies done in different parts of world: Gondar town of Northwest Ethiopia, urban areas of Delhi, India, and cities of Nepal. For the common symptoms that prompted self-medication among the participants were headache, cold and cough, fever and GI infection [13, 14, 15, 16, and 18].

The reason for self-medication among the respondents practicing self-medication was observed highest for saving time 100(46.6%) followed by quick relieve of symptoms 50(23.6%) in this study. This result was slightly different from the study done by Alghanim. S.A. in 2011 which showed that the most common reason for self-medication was previous successful experience and the illness being minor [16, 17].

Regarding self-reported practices among the respondents practicing self-medication, 189 (87.9%) participants checked medicine for expiry date. Similarly few 28 (13.4%) participants reported side effects following self-medication among which 14 (50%) visited doctors for the treatment in health facility. But less than 10% respondents experienced side-effects of drug during course of self-medication in the study done by Kumar. V and et.al in 2015. The reasons may be the lack of awareness and different educational status among the respondents of various study population [15].

Out of 309 subjects, around fifty percent 153 (49.5) subjects were aware about drug interaction but the study done in India in 2017 depicted very few people were aware about drug interaction due to lack of proper counseling to the respondents during medicine purchase [9].

Association study on practice of Self-Medication and selected demographical variables reveals that practice of self-medication was statistically significant with age of respondents, level of education and type of family. Whereas statistically insignificant with gender and income of family. Some similar findings were reported by Kumar.V et.al (2015) where insignificant association between practice of self -medication and gender, but there was a significant association with age [15].

Comparing the results of the present study with those in the literature was difficult since studies differ in their definitions of SM and in the methodologies employed and many countries also differ in their cultures, health care system and the perceived role of pharmacists.

5. Conclusion

The practice of self-medication was high in community people irrespective on knowledge on self-medication for wide range of illness. Allopathic medicines were commonly used by the residents. Thus, to avoid the dangers of self-medication the people of community should be educated involving various public and private organization through different campaign, mass media about the indiscriminate use of medicine. Regulatory authority must be updated with

the law on implementation of retail pharmacy. Proper drug control regulation should be ensured and every retail pharmacy should be run by registered retail pharmacist.

Recommendation

- Further research can be conducted among larger population to generalize findings.
- A comparative study can be carried out on practice of self-medication in urban and rural community.
- Awareness campaign program about medication can be conducted to reduce dangers complication of self-medication among the community people.

Limitation of the study

This study was conducted on a single ward of the municipality, so the study findings cannot be generalized. Another source of bias could result from the sampling technique employed since participants were recruited conveniently due to time constraints for data collection.

Compliance with ethical standards

Acknowledgments

Authors would like to thank Institutional Review Committee of Manmohan Memorial Institute of Health Sciences (MMIHS) for permitting us to carry out the research. We would like to extend our sincere thanks to Chairperson of Madhyapur Thimi Municipality ward number 4 for granting permission and facilitation in collection of data. We would like to express our sincere gratitude to all the participants of Madhyapur Thimi Municipality ward number 4 for their valuable time and cooperation during the collection of data. We are profoundly thankful to MMIHS faculty and administration for their support.

Disclosure of conflict of interest

We do not have any conflicts of interest to declare.

Statement of informed consent

Informed consent was obtained from all individual participants of Madhyapur Thimi Municipality ward number 4 included in the study.

References

- [1] Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V et al. Perceptions and Practices of Self-Medication among Medical Students in Coastal South India. PLoS ONE. 2013;8(8):e72247.
- [2] World Health Organization Netherland .The role of the pharmacist in self-care and self-medication .WHO/DAP/1998:98.13
- [3] P, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. BMC Family Practice. 2002;3(1).
- [4] Helal R, Abou-ElWafa H. Self-Medication in University Students from the City of Mansoura, Egypt. Journal of Environmental and Public Health. 2017;2017:1-7.
- [5] World Health Organization Geneva. Guidelines for the regulatory assessment of medicinal products for use in self-medication. WHO/EDM/QSM/2000:00.1
- [6] Mamo S, Ayele Y, Dechasa M. Self-Medication Practices among Community of Harar City and Its Surroundings, Eastern Ethiopia. Journal of Pharmaceutics. 2018;2018:1-6.
- [7] Ocan M, Obuku E, Bwanga F, Akena D, Richard S, Ogwal-Okeng J et al. Household antimicrobial self-medication: a systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. BMC Public Health. 2015;15(1).
- [8] Rajput MS, Mathur V, Satrawala Y, Nair V. Pharmacoepidemiological study of self-medication in Indore city. Indian J.pharm.pract. 2010;3(1)

- [9] Sridevi D, Subbaiah M, Surekha M, Harini J, Sujana D, Sankar A. Assessment of Self Medication Practices Among Community People. IOSR Journal of Dental and Medical Sciences. 2017;16(05):75-82.
- [10] Wijesinghe P, Jayakody R, de A Seneviratne R. Prevalence and predictors of self-medication in a selected urban and rural district of Sri Lanka. WHO South-East Asia Journal of Public Health. 2012;1(1):28.
- [11] Parulekar M, mekoth N, Ramesh CM, Parulekar A; Self-Medication in Developing Countries: A systemic Review, journal of Pharmaceutical Technology, Research and management; 2016:4(2) pp 103-127
- [12] Grigoryan L, Haaijer-Ruskamp F, Burgerhof J, Mechtler R, Deschepper R, Tambic-Andrasevic A et al. Self-medication with Antimicrobial Drugs in Europe. Emerging Infectious Diseases. 2006;12(3):452-459.
- [13] Jember E, Feleke A, Debie A, Asrade G. Self-medication practices and associated factors among households at Gondar town, Northwest Ethiopia: a cross-sectional study. BMC Research Notes. 2019;12(1).
- [14] Parajuli S, Mishra A, KC H, Bhattarai P, Karki S, Pandit R et al. Self-Medication Practices in Surrounding Communities of Birat Medical College and Teaching Hospital of Eastern Nepal. Journal of College of Medical Sciences-Nepal. 2019;15(1):45-52.
- [15] Kumar V, Mangal A, Yadav G, Raut D, Singh S. Prevalence and pattern of self-medication practices in an urban area of Delhi, India. Medical Journal of Dr DY Patil University. 2015;8(1):16.
- [16] Alghanim S. Self-medication practice among patients in a public health care system. Eastern Mediterranean Health Journal. 2011;17(05):409-416.
- [17] Ateshim Y, Bereket B, Major F, Emun Y, Woldai B, Pasha I et al. Prevalence of self-medication with antibiotics and associated factors in the community of Asmara, Eritrea: a descriptive cross sectional survey. BMC Public Health. 2019;19(1).
- [18] Paudel S, Aryal B. Exploration of self-medication practice in Pokhara valley of Nepal. BMC Public Health. 2020;20(1)