

STUDY OF THE PREVALENCE AND EPIDEMIOLOGICAL CORRELATES OF SELF-MEDICATION AMONG ELDERLY OF AN URBAN COMMUNITY IN NORTH INDIA

Abhinav Pandey¹, Shavinder Singh², Deepshikha Kamra³, Sugandhi Sharma⁴

Received : 11/06/2023
Received in revised form : 28/07/2023
Accepted : 12/08/2023

Keywords:

Self-medication, Elderly, Urban Community, Allopathic drugs, over the counter drugs

Corresponding Author:

Dr. Sugandhi Sharma,

Email: doctor.sugandhisharma@gmail.com

DOI: 10.47009/jamp.2023.5.4.312

Source of Support: Nil,

Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (4); 1567-1572



¹Assistant Professor, Community Medicine, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, UP, India.

²Professor, Community Medicine, CMC, Ludhiana, Punjab, India.

³Professor, Community Medicine, CMC, Ludhiana, Punjab, India.

⁴Assistant Professor, Community Medicine, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, UP, India.

Abstract

Background: Self-medication is taking allopathic medicine for any illness including acute and chronic diseases, without a valid prescription by a doctor or modifies his/her treatment according to his/her own understanding of the illness. Elderly often self-medicates allopathic drugs for common acute problems such as fever, mild pain, colds, indigestion/gas, as well as chronic ones like allergies, constipation, and insomnia. **Materials and Methods:** This is a community based cross sectional study, conducted in the urban field practice area under the Department of Community Medicine, Christian Medical College, Ludhiana. House to house survey was conducted with pretested- semi-structured questionnaire, using systematic random sampling. **Results:** Prevalence of self-medication of allopathic drugs in elderly respondents was found to be 72.9%. These practices were more in lower (100%) and upper lower (78.9%) class than lower middle (71.8%) and upper middle class (56.9%). A statistically significant association was found between self-medication and educational status of respondents. Self-medication practice was having an increasing trend with decrease in pooled family income. **Conclusion:** There is the high prevalence of self-medication of allopathic medicine in elderly (72.9%) in our community. Self-medication of allopathic drugs is increasing in a developing country like India where elderly population is at a rise with rise in non-communicable chronic diseases amongst them. Also, almost all the allopathic medications are available over the counter. This makes it necessary for all healthcare professional to intensify efforts to educate and advise the elderly patients to ensure safe and appropriate use of drugs.

INTRODUCTION

In developing countries, most of the illnesses are treated by self-medication.^[1] According to WHO's definition, self-medication is "the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms or the intermittent or continued use of medication prescribed by a physician for chronic or recurring diseases or symptoms".^[2] Common reasons cited for self-medication are inaccessibility of health care facilities, economic constraints and previous experience of illness.^[3,4] However, there is an associated risk with self-medication ranging from incorrect self-diagnosis or incorrect choice of therapy to a failure in recognizing potential pharmacological risks (World Health Organization, 2000).

Elderly population experience various health related issues and comorbidities and thus they are more prone to self-medication which may ultimately lead to various adverse effects.

In India, population aged 60 years and above is projected to be double in size between 2001 and 2026, the elders will account for 12.17% of overall population in 2026.^[5] Although allopathic medicine is most frequently their choice, home remedies and other complementary and alternative medicines are also used. Majority of elderly self-medicate for minor ailments. However, self-medication may lead to unwanted consequences due to interactions with the prescribed drug therapy for chronic diseases.

As medicines are easily available over the counter (OTC) and the elderly population continues to increase, a need arises to monitor how elderly

individuals use these pharmacological agents.^[6,7] Knowledge on the part of doctors as well as patients about self-medication practices would help in reducing the chances of any untoward consequences with higher possibilities of adverse reactions and drug interactions than their younger counterparts.^[5] Since, relevant data regarding self-medication with allopathic drugs among elderly is lacking, the present study was carried out to access prevalence and correlates of self-medication among elderly in an urban community of a North India.

MATERIALS AND METHODS

Study Design and Setting

The present community based cross-sectional study was conducted in the Field Ganj village, an urban health field practice area of a tertiary care centre located in North India from 1st January 2016 to 31st December 2017. This urban health training centre is a primary health centre which covers a total population of 20,000. Out of total population, 6.4 % of individuals are above 60 years of age. The entire population is closely monitored by multipurpose health worker which provide home based comprehensive health care and a family folder for each family is maintained at the centre.

Study Population

Elderly people, 60 years and above, resident of the village Field Ganj who were willing to participate in the study were the respondents. Individuals taking medicines other than allopathy and who were not capable of providing relevant information due to any mental illness were excluded.

Operational Definition

Self-medication: Individuals who were taking allopathic medicine for any illness including acute and chronic diseases, without a valid prescription by a doctor or modifies his /her treatment according to his/her own understanding of the illness.

Sample Size

Sample size was calculated using the formula $4p(1-p)/d^2$ where p is the prevalence and d is the relative precision. Based on a study conducted by Mandavi et al. (2008)^[3] the prevalence of self-medication was taken to be 63%, relative precision of 10%, the minimum sample size calculated was 234. Considering a non-response rate of 20%, the sample size was estimated to be 280.

Sampling Technique

A line list of all 1280 elderly (60 years and above) population, residing at the village was obtained from multipurpose health worker. Study subjects were approached using a systematic random sampling method. If the selected subject didn't fulfil the eligibility criteria or was not present at home in the two consecutive visits, then next individual in the list was enrolled.

Study tool and Data Collection

The information was collected on a pre-tested semi-structured questionnaire through personal interviews

through house-to-house visits, from 280 elderly individuals of age more than 60 years after obtaining written informed consent form them. The questionnaire consisted of four parts: demographic profile, details of illnesses present, medicine taking behaviour and pattern of self-medication practice.

Data Analysis

Data entry was done by Epidata Entry version 3.1 software. Data analysis was done by Epidata Analysis Version 2.2.2 and EpiInfo 3.5.4 software. Descriptive statistics such as mean with standard deviation (SD) for continuous variables, and frequency along with their percentage for categorical variables with 95% confidence interval were computed. In bivariate analysis, chi-square values were calculated wherever appropriate and multiple logistic regression was used to find out the predictors for self-medication among elderly. A p-value less than 0.05 was considered statistically significant.

Ethical Consideration

Ethical clearance and approval was obtained from institutional ethical clearance committee of Christian Medical College Ludhiana. The study participants were ensured complete confidentiality and anonymity.

RESULTS

A total of 280 elderly more than 60 years of age were interviewed. The prevalence of self-medication among elderly 60 years and above was estimated to be 73.0 %. (Figure 1)

Majority of the respondents were female (62.1%), living in joint family (86.1%) and belonging to upper lower class family (50.7%). Around 70.0% of participants were financially dependent and 30.0% were illiterate.

Self-medication was practiced by majority of participants but there was no statistically significant difference was observed between self-medication practice and age, gender, type of family, marital status, education and employment status of elderly. However, the prevalence of self-medication was found to be higher among participants belonging to lower class & having lower family income and this difference was found to be statistically significant. (Table 1)

Around one third (34.6%) of the study participants always consulted a doctor when fall sick. Out of these, 22.7 % of elderly were modifying the prescribed medicine on their own. 85.0% of the elderly were suffering from some chronic disease and maximum (59.0%) of them do not follow up routinely. Elderly who spent less on health, who did not have any prescription for current illness and does not follow up regularly for their chronic illness were practicing more self-medication and this difference was found to be statistically significant. (Table 2)

Around 85.0% of the elderly were on medication for any chronic/acute illness at the time of the study

(Figure 2) and half of the them did not have any prescription with them (Figure 3). A maximum (83.0%) of the study participants directly take medicines from pharmacy based on the pharmacist advise while only a few were influenced by the media. (Figure 4)

On applying multivariate logistic regression, educational status of participants and participant's follow-up pattern for their chronic illnesses were found to be the predictors for the practice of self-medication. (Table 3)

Table 1: Sociodemographic characteristics of the study participants related to self-medication. (N= 280)

Variables	n (%)	Self-medication n [%]		p value	
		Yes	No		
		(n=204)	(n= 76)		
Age (years)	60 - 69	117 (41.8)	85 [72.6]	32 [27.4]	Chi ² = 0.005, df (2) p value= 0.99
	70 -79	104 (37.2)	76 [73.1]	28 [26.9]	
	>=80	59 (21.0)	43 [72.9]	16 [27.1]	
Gender	Male	106 (37.9)	77 [72.6]	29 [27.4]	Chi ² = 0.004, df (1) p value = 0.94
	Female	174 (62.1)	127 [73.0]	47 [27.0]	
Marital status	Married	131 (46.8)	96 [73.3]	35 [26.7]	Chi ² = 0.023, df (1) p value = 0.88
	Widowed	145 (51.8)	106 [73.1]	39 [26.9]	
	Unmarried/Divorced	4 (1.4)	2 [50.0]	2 [50.0]	
Type of family	Joint	241 (86.1)	177 [73.4]	64 [26.6]	Chi ² = 0.301, df (1) p value = 0.58
	Nuclear	39 (13.9)	27 [69.2]	12 [30.8]	
Financially dependent	Yes	202 (72.1)	153 [75.7]	49 [24.3]	Chi ² = 3.053, df (1) p value = 0.08
	No	78 (27.9)	51 [65.4]	27 [34.6]	
Socio-economic Status	Upper middle class	51 (18.2)	29 [56.9]	22 [43.1]	Chi ² = 9.548, df (2) p value = 0.00
	Lower middle class	85 (30.4)	61 [71.8]	24 [28.2]	
	Upper lower class	142 (50.7)	112 [78.9]	30 [21.1]	
	Lower class	2 (0.7)	2[100.0]	0[0.0]	
Employment status	Employed	57 (20.4)	42 [73.7]	15 [26.3]	Chi ² = 0.025, df (1) p value = 0.87
	Unemployed	223 (79.6)	162 [72.6]	61 [27.4]	
Education	Illiterate	82 (29.3)	62 [75.6]	20 [24.4]	Chi ² = 5.754, df (4) p value = 0.21
	Primary School /Literate	61 (21.8)	50 [82.0]	11 [18.0]	
	Middle School	56 (20.0)	36 [64.3]	20 [35.7]	
	High School	42(15.0)	30 [71.4]	12 [28.6]	
	Intermediate/ Diploma	10 (3.6)	6 [60.0]	4 [40.0]	
	Graduate /Post Graduate /Professional	29 (10.0)	20 [67.9]	9 [32.1]	
Family Income per month (INR)	More than 36,997	25 (8.9)	13 [52.0]	12 [48.0]	Chi ² = 13.152, df (4), p value = 0.01
	18,498-36,996	79 (28.2)	53 [67.1]	26 [32.9]	
	13,874-18,497	59 (21.1)	41 [69.5]	18 [30.5]	
	9,249-13,873	60 (21.4)	50 [83.3]	10 [16.7]	
	Less than or equal to 9,248	57 (20.4)	47 [82.5]	10 [17.5]	

() column %; [] row %

Table 2: Health profile of the study participants and their relation with the self-medication practices. (N=280)

Variables	n (%)	Self-medication		p value
		n (%)		
		Yes (n=204)	No (n=76)	
Type of health facility visited by participants during any illness				
Government	3 (1.1)	1 [33.3]	2 [66.6]	Chi ² =4.32, df (1) p value = 0.11
Private	233 (83.2)	167 [71.7]	66 [28.3]	
Both	44 (15.7)	36 [81.8]	8 [18.2]	
Always consult a qualified allopathic doctor when they fall sick				
Yes	97 (34.6)	22 [22.7]*	75 [77.3]	Chi ² =188.95, df (1) p value = 0.00
No	183 (65.4)	182 [99.5]	1 [0.5]	
Expenditure on health (INR)				
5000 and above	6 (2.1)	2 [33.3]	4 [66.7]	Chi ² = 7.87 df (2) p value = 0.019
1000 to 5000	116 (41.4)	77 [66.4]	39 [33.6]	
500 to 1000	75 (26.8)	57 [76.0]	18 [24.0]	
Less than 500	83 (29.6)	68 [81.9]	15 [18.1]	
Suffering from any acute illness				
Yes	22 (7.9)	15 [68.2]	7 [31.8]	Chi ² = 0.26, df (1) p value = 0.60
No	258 (92.1)	189 [73.2]	69 [26.7]	
Suffering from any chronic illness				
Yes	238 (85.0)	175 [73.5]	63 [26.5]	Chi ² = 0.36, df (1) p value = 0.54
No	42 (15.0)	29 [69.0]	13 [31.0]	
Follow-up pattern of those suffering from any chronic illness (n = 238)				
Never/As desired	140 (59.0)	128 [92.1]	11 [7.9]	Chi ² = 60.52, df(1) p value = 0.00
Once or more in three months	84 (35.0)	36 [42.9]	48 [57.1]	
Once in an year	14 (6.0)	10 [71.4]	4 [28.6]	
Participants currently on medication due to any acute/chronic illness				
On medication	239 (85)	176 [73.6]	63 [26.4]	Chi ² = 0.50 df(1) p value = 0.47
Not on medication	41 (15)	28 [68.3]	13 [31.7]	
Availability of prescription among those who were on medication for any acute and/or chronic illness (n=239)				
Yes, taking medicines as prescribed	96 (40.2)	42 [43.8]	54 [56.3]	Chi ² = 74.29, df (2) p value= 0.00
Yes, but not taking medicines as prescribed	19 (7.9)	19 [100.0]	0 [0.0]	
Not available	124 (51.9)	115 [92.7]	9 [7.3]	

*Always consult a doctor but modify the treatment on their own.

() column %; [] row %

Table 3: Unconditional Multiple Logistic Regression of factors associated with self-medication of allopathic drugs amongst elderly

Variables	Odds ratio	95% confidence interval		Coefficient	p value
		Lower limit	Upper limit		
Educational status	0.59	0.3683	0.948	-0.5261	0.02
Financially dependent	1.13	0.347	3.7427	0.1306	0.82
Socio-economic status	1.63	0.3756	7.081	0.489	0.51
Family Income	1.09	0.4994	2.3894	0.0883	0.82
Follow-up pattern for chronic illnesses	0.31	0.1128	0.8643	-1.1638	0.02
Expenditure on health	1.51	0.7316	3.1551	0.4182	0.26

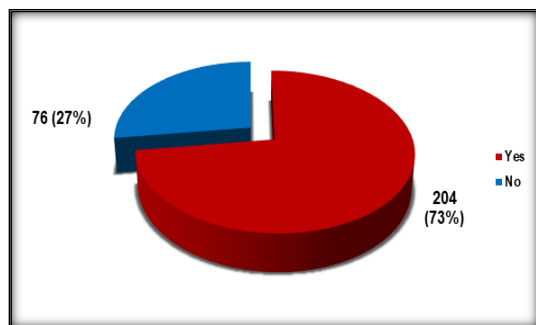


Figure 1: Prevalence of self-medication among elderly

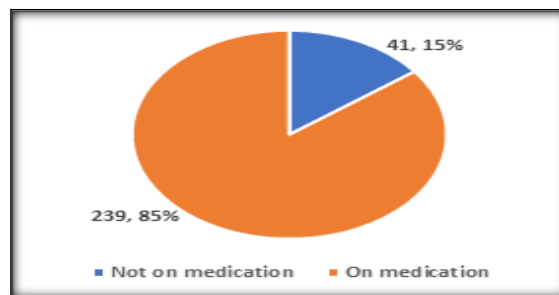


Figure 2: Participants who were on medicine due to any acute/chronic illness (n =280)

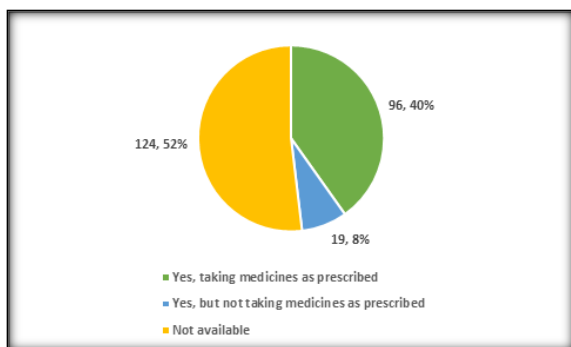


Figure 3: Availability of prescription among elderly who were on medication (n=239)

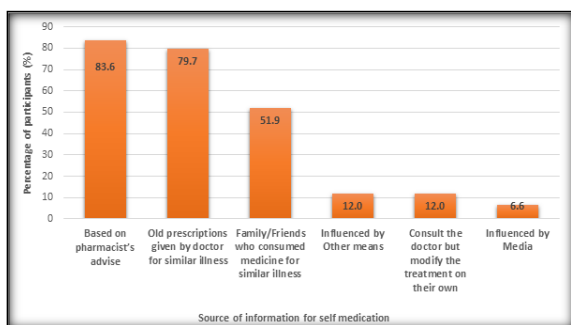


Figure 4: Source of information for self-medication (n = 204) *

*Multiple response

DISCUSSION

In our study, prevalence of self-medication of allopathic drugs among elderly was found to be 72.9% (95% CI, 67.4-77.7). Similarly, high prevalence of self-medication was found in a study conducted by de Oliveira et al. (2012)^[8] in Brazil and Jafari F et al. (2015).^[9] in Iran.

In a study by Mandavi et al. (2008).^[3] conducted in Chandigarh, prevalence of self-medication in elderly was found to be 63.0%. Similar findings were observed in a study by Parmar Z et al. (2015).^[5] in Ahmedabad, by Faisal DA et al. (2015).^[11] in Karachi, Pakistan and by Motavali ZS et al. (2016).^[10] in Shahr-e-Kord.

The reason for higher prevalence of self-medication among elderly might relate to several years of their experience with self-medication due to multiple comorbidities they suffer from.

Self-medication in our study was found to be almost equally prevalent among males and females which can be compared to a study by Amoako EP et al. (2003).^[13] in North Carolina in which there was no gender differences existed in OTC medicines used for self-medication. In contrast to our results, a study done by Parmar Z et al. (2015).^[5] in Ahmedabad and Jafari F et al. (2015).^[9] in Iran where self-medication was more prevalent among males (60.5%) and females (92%) respectively.

This may be due to the fact that most of the elderly, either male or female, were financially dependent and unemployed with age related changes and co-

morbidities acting as a barrier to seek proper medical services.

In our study, self-medication was slightly more practiced among those who were financially dependent and thus making them more prone to skip doctor consultations for their illnesses and thereby leading them to self-medication.

It was observed in our study that elderly who belong to lower and upper lower class were practicing more self-medication as compare to upper middle class.

Because of low family income and unemployment not fulfilling the expenditures, low educational status and less knowledge about health, disease and treatment, elderly of the low socio-economic status are more vulnerable for practice of self-medication.

In our study that self-medication practice was more common in elderly whose pooled family income was less. This was unlike the results of a study by Parmar Z et al., (2015).^[5] in Ahmedabad, where there was no significant difference for self-medication between groups with monthly family income and self-medication practice. This is explained as the self-medication practice is a cheaper method to treat self-diagnosed illnesses and symptoms, seeking information about a disease and drug and consuming that also makes them save consultation money of doctor and also an urge to save money for household is always a priority for elderly.

In this present study, self-medication practice is almost equal amongst respondents those who were suffering from any chronic illness as well as amongst those who were not. It is in accordance to a study by Amoako EP et al., (2003).^[13] in North Carolina, where the number of OTC agents by self-used was positively correlated with the number of chronic diseases. Out of the elderly who were having chronic illness, majority (59%) of them never followed up, and hence, more vulnerable for self-medication.

Majority of elderly get their medicines directly from pharmacy without any prescription. The results from our study were in line with a study conducted by Biswas A et al. (2015).^[12] & Jawarkar A et al. (2017).^[14] where pharmacist was the main source of information. From a similar study by Mandavi et al. (2008).^[3] in Chandigarh, 45.8% out of the total self-medicating respondents had used allopathic medications for their ailments without prescription or any medical advice.

This high percentage of respondents getting allopathic medicines from medical store without prescription in our study shows that elderly are more prone to self-medication because of easy availability of over the counter drugs.

Most of the elderly follow old prescriptions given by doctor for similar illness which is comparable to findings of studies from Iran^[9], where it was 87.6%.

In our study, half of the elderly were influenced by family/friends for self-medication. This can be compared with a study by Jafari F et al. (2015).^[9] in Iran, where (64.6%) respondents were self-medicating on the advice of friends/family. This result was in contrast with a study conducted by

Parmar Z et al., (2015).^[5] in Ahmedabad which showed that 24.9% were influenced by relatives and friends for drug information and self-medication practice. This difference might be due to the fact that in our study most of the participants were financially dependent and illiterate and to save the expenses they trusted more on pharmacist and family/friends which could ultimately save their expenditure on health.

Almost half of the participants who were on medication at the time of interview were not having any prescriptions with them.

However, very few participants were influenced by media to get medicines from pharmacy. This can be compared to a study by Amoako EP et al. (2003).^[13] in North Carolina while in contrast with a study by Parmar Z et al., (2015).^[5] in Ahmedabad where 23.2% of elderly were influenced by advertisements for medication. This difference in our study could be attributed to the fact that our setting was an urban slum where exposure to media is not as much as the people in urban area.

Self-medication practices were seen more among those who had less monthly health expenditure. Having less monthly health expenditure at this age is most probably due to the low financial income and if they are dependent, they have to spend very cautiously for their living including health expenses. In such conditions, elderly are most often not visiting a doctor for each and every illness and hence self-medicating.

The most common reason for practicing self-medication seems to be financial limitation, age related reduced mobility and dependency. It leads them unable to visit a qualified doctor every time they fall sick and therefore, they are usually and easily influenced by chemist, friends, family members, neighbours, media and advertisements for treating their illnesses and self-medicate allopathic drugs. This is a risky practice as it can lead to interactions and side effects in them as geriatric age is already in a compromised state of bodily functions and metabolism. A major problem with self-medication is antimicrobial resistance which is a worldwide problem, particularly in developing countries where antibiotics are often available without a prescription.

CONCLUSION

It can be concluded from the present study that there is the high prevalence of self-medication of allopathic medicine among elderly. Majority of elderly were suffering from chronic illnesses and they self-medicate for their chronic illnesses as well as for their age-related morbidities and ailments quite often.

This is a matter of concern as poly-pharmacy is common in elderly who suffer from multiple diseases and there are higher possibilities of adverse reactions and drug interactions than their younger counterparts. Knowledge on the part of doctors as well as patients about self-medication practices would help in

reducing the chances of any untoward consequences. Hence, it is imperative for the doctors to ask their patients especially the elderly about the history of self-medication and for the patients also to give information regarding the use of any self-medication. Although self-medication is difficult to eliminate as our country lacks in a regulatory labelling of OTC drugs and prescription only drugs. Interventions can be made to discourage this practice and ensure safer usage of allopathic drugs, especially in the susceptible subsets of patients like elderly. The intervention will require better elderly patient education regarding safe self-medication and about their bodily state and functions by media and health professionals, and strong reinforcement, to avoid the irrational use of allopathic drugs. Strict legislation regarding the accessibility of these potential risky allopathic drugs by elderly may also be warranted.

Acknowledgment: We highly acknowledge to the staff of urban health centre for their immense support and contribution throughout the study.

Conflicts of interest statement: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: The author(s) received no financial support for the research, authorship, and/or publication of this article.

REFERENCES

1. Sharma R, Verma U, Sharma CL, Kapoor B. Self-medication among urban population of Jammu city. *Indian J Pharmacol.* 2005 Jan 1;37(1):40.
2. WHO, DAP. The role of the pharmacist in self-care and self-medication. Report of the 4th WHO Consultative Group on the role of the pharmacist. Geneva: World Health Organisation; 1998. Report No: 98.13.
3. Mandavi, Tiwari P, Kapur V. Self-medication pattern among elderly patients of North India public hospital: A hospital based questionnaire appraisal. *Indian J Pharm Pract.* 2008; 1(1):26-29
4. Stoehr GP, Ganguli M, Seaberg EC, Echement DA, Belle S. Over-the-counter medication use in an older rural community: the MOVIES Project. *J Am Geriatr Soc.* 1997 Feb;45(2):158-65.
5. Parmar Z, Malhotra SD, Patel VJ. Prevalence and pattern of self-medication in elderly individuals. *Int J Basic Clin Pharmacol.* 2015;4(6):1095-9.
6. Ministry of statistics and programme implementation Government of India. Elderly in India 2016 [Internet]. New Delhi: Central Statistics Office Ministry of Statistics and Programme Implementation Government of India; 2016 Feb [cited 2016 Sep 22]. Available from: www.mopsi.gov.in
7. Bond C, Hannaford P. Issues related to monitoring the safety of over-the-counter (OTC) medicines. *Drug Saf.* 2003;26(15):1065-74.
8. de Oliveira MA, Francisco P, Costa KS, Barros MBD. Self-medication in the elderly population of Campinas, Sao Paulo State, Brazil: prevalence and associated factors. *Web Sci [Internet].* 2012 [cited 2017 Dec 4]; Available from: <http://repositorio.unicamp.br/jspui/handle/REPOSIP/71393>.
9. Jafari F, Khatony A, Rahmani E. Prevalence of Self-Medication Among the Elderly in Kermanshah-Iran. *Glob J Health Sci.* 2015 Mar;7(2):360-5.
10. Motavali ZS, Abedi H, Davaridolatabadi E. Self-medication and its effective modifiable factors among elderly referred health care centers in Shahr-e-Kord in 2015. *Electron Physician.* 2016 Nov;8(11):3205-13.
11. Faisal DA, Mahmood DA, Kushtiwala DDH. Self-Medication and Inappropriate drug use in Geriatric Population of Karachi, Pakistan. *Dep Health Manag [Internet].* 2015 Aug 22 [cited 2017 Dec 3];19(1). Available from: <http://journals.iobmresearch.com/index.php/DHM/article/view/143>
12. Biswas A, Sen S, Pal A, Das J, Das S, Tripathi SK. Self-medication trend among the urban elderly - a cross-sectional, observational study. *Asian J Med Sci.* 2015 Mar 16;6(5):66-8.
13. Amoako EP, Richardson-Campbell L, Kennedy-Malone L. Self-Medication with over-the-counter Drugs Among Elderly Adults. *J Gerontol Nurs.* 2003 Aug 1;29(8):10-5.
14. Jawarkar AK, Wasnik VR, Anuradha K. Self-medication practices amongst elderly population in an urban health center of Amravati district of Maharashtra, India. *Journal of the Indian Academy of Geriatrics.* 2017; 13:118-23.