Self-medication practices among residents of Puducherry – A cross sectional questionnaire based survey

M. Shanmuga Priyan[1], B. Maharani[2,*], A. Lourdu Jafrin[3], Vijay K. Chavada[4], G. Sivagnanam[5]

[1]M.B.B.S Student, [2]Associate Professor, [3]Associate Professor & HOD, [4]Associate Professor, [5]Dean & Professor, [1,2,3,5]Dept. of Pharmacology, [4]Dept. of Community Medicine, Indira Gandhi Medical College & Research Institute, Puducherry, India

*Corresponding Author:
Email: drkarthikrani@gmail.com

Abstract

Introduction: Improper self-medication of Over the Counter (OTC) drugs and /or drugs from earlier prescription may result in adverse drug reactions and /or serious drug interactions with co-administered alternate system of drugs. Information on self-medication practices, the factors influencing such practices and incidence of ADRs associated with self-medication among the residents of Puducherry is not available.

Aim: To study the prevalence of self-medication among the residents of Puducherry and to determine the factors that influences the pattern of self-medication.

Materials and Methods: Cross-sectional questionnaire based study, was carried out using a pretested validated questionnaire on self-medication practices on a randomly selected population of adult residents of Puducherry.

Results: Among the 380 participants who responded by answering to the questionnaire, 34.5% were males and 65.5% were females. Mean age of the respondents was 36.4±11.7 yrs. approximately 59.5% of the respondents self-medicated with allopathic drugs. The frequency of self-medication by the respondents ranged from once (31.3%) to more than 5 times (11.1%) in the past six months recall period. Statistically significant association was found between occupation and self-medication (p<0.01). The commonest symptoms for which the respondents self-medicated were headache and fever (60.2 and 42.0% respectively). Most common drugs consumed by self-medication were NSAIDs (63.71%) in which paracetamol contributed to 43.36% followed by anti-histaminics (28.31%). Private pharmacy (89.8%) was the major source of drugs for self-medication followed by left over drugs in the home (5.3%). Simpler nature of the disease was the reason given by 66.4% of the self-medicated individuals. A side effect with self-medication was experienced by 11.9% of the respondents. Alternate system of medicine was used by 24.3% respondents with self-medication. Pharmaceutical expiry date was always checked by 87.2% of the respondents.

Conclusion: Self-medication prevalence in the community surveyed is moderately high. Joint efforts by the health careers including community pharmacists to educate the ill effect of self-medication among general public can help in reducing the practice of self-medication and betterment of the society.

Keywords: Prescription drugs, expiry date, adverse drug reactions, alternate system of drugs.

Introduction

Self-medication is defined as "the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a previously prescribed drug for chronic or recurrent disease or symptoms".[1] World Health Organization(WHO) promotes the practice of self-medication without medical consultations for an effective and quick relief of symptoms to reduce the burden on health care service centers, which are often understaffed and inaccessible in rural and remote areas.[2] Over the counter (OTC) medications are also a form of self-medication. The practice of self-medication is widely employed by people all over the world.[3] In addition to allopathic drugs, self-medication of alternate system of medicine with or without allopathic drugs is also prevalent among the people. [4] Improper use of OTC drugs and prescription only drugs by self-medication may result in adverse drug reactions and serious drug interactions with co-administered drugs. Adverse drug reactions (ADRs) are quite common not only with allopathic medicine, but can also occur when taken with alternate system of medicine due to the drug-drug interaction.[5] ADRs are among the most common reasons for hospitalization and/or mortality.[6] Literature search revealed incidence of 1.3% of reported ADRs are associated with self-medication.[7] Information on self-medication practices, the factors influencing the practices and incidence of ADRs associated with self-medication among the residents of Puducherry is not available. Hence the present study was undertaken with the following objectives.

1. To study the prevalence of self-medication among the residents of Puducherry.
2. To determine the factors that influences the pattern of self-medication.

Materials and methods

Study design

The study is a community based cross-sectional questionnaire based study held at Puducherry. The study was conducted over a period of six months after obtaining Institutional Ethics Committee clearance. Puducherry comprises three communes as per revenue and administration purpose. One commune was randomly selected. From the selected commune, geographical areas catered by two primary health centres were randomly selected and in the last stage of

sampling, responses were collected from the residents living in the area serviced by the selected Primary health centre.

Sample size

The sample size 400 was calculated as follows:

Required sample size = $4pq/L^2$ where p is taken as prevalence of self-medication, p=71%[8], q= (100-71) =29%, L=allowable error as 7.5% of p=5.32

Sample size thus calculated was 291 and anticipating non-response, incomplete data collection, the sample size has been kept at 400.

Inclusion criteria

1. $\geq$ 18 yrs. of age
2. Both Male and Female.
3. Willingness to participate in the study

Exclusion criteria

1. Psychiatric patients
2. <18 yrs. of age
3. Not willing to participate in the study
4. Very sick and bed ridden patients

Data collection

A pretested validated questionnaire was used for data collection after obtaining written informed consent from the participants. The respondents were interviewed in the local language (Tamil). Demographic details of the participants, their response on self-medication practices on allopathic and alternate system of medicine, commonly self-medicated drugs, reasons, purpose and source of initiation for self-medication, awareness on ADR and expiry date of pharmaceutical preparations, incidence of adverse effect associated with self-medication were recorded. The respondents were advised to provide single or multiple responses (if more than one option is right).

Statistical analysis

The collected data were entered in MS Excel master sheet and analyzed using SPSS Version 20.0. The descriptive statistics for categorical variables were explained in the form of percentages and proportions whereas; mean and standard deviation were used for continuous variables. Inferential statistics using chi-square test was applied to find any significant association for categorical variables and p<0.05 was considered as significant.

Results

Responses were obtained from 380 participants. The mean age of the respondents was 38±14 yrs. Among the respondents 131(34.5%) were males and 249(65.5%) were females. Percentage of married and unmarried respondents were 292(76.8%) and 88(23.2%) respectively. Out of 380 participants, 226 (59.5%) self-medicated themselves with allopathic drugs. The mean age of the self-medicated respondents was 36.4±11.7 yrs. Male and female self-medicated respondents were 64(48.8%) and 162(65.1%) respectively. The frequency

of self-medication by the respondents ranged from once (70 respondents, 31.3%) to more than 5 times (25 respondents, 11.1%) in the past six months recall period. There was a statistically significant association between occupation and self-medication (p<0.001), whereas no significant association was found between income and education status of the participant to self-medication (p>0.05) (Table –1). The common symptoms for which the respondents self-medicated were headache and fever (60.2 and 42.0% respectively) (Table-2). Out of 226 self-medicated participants, the most common drugs consumed by self-medication were NSAIDs (63.71%) in which paracetamol contributed to 43.36% followed by antihistaminics (28.31%) (Figure-1). The various other NSAIDs consumed by self-medication were diclofenac, aceclofenac, ibuprofen, mefenamic acid. Some of the Fixed Drug Combinations used by self-medications are Action-500, anacin, metacin, saridon, combiflam. Private pharmacy 203(89.8%) was the major source of drugs for self-medication followed by left over drugs in the home 12(5.3%).

When questioned about the reasons for self-medication, disease was simple was the response given by 66.4% of the self-medicated individuals. (Figure-2) Other reasons given by the respondents were lack of trust in medical services and urgent need of drugs. Majority of the respondents, self-medicated by their own initiative (53.5%)(Table-3). Out of 226 self-medicated respondents, 27(11.9%) said they experienced side effect with self-medicated drugs. Awareness on side effects of self-administered drug was present only among 122(53.98%) participants. Alternate system of medicine was used by 55(24.3%) respondents who were self-medicated. Among the 55 respondents using alternate system of medicine, 13(5.8%) were aware of drug interaction between alternate and allopathic drugs when co-administered. Pharmaceutical expiry date was always checked by 197(87.2%) of the respondents, 24(10.6%) respondents never checked the expiry date while 5(2.2%) respondents at times checked the expiry date.

Discussion

The study was conducted in Puducherry to estimate the prevalence and the factors that influence the pattern of self-medication. Self-medication was practiced by 59.5% of individuals in the past six months recall period. This was similar to the study conducted in North India and Nepal with the prevalence rate of 62% and 59% respectively. [9,10] But contradicts the finding in the study done in coastal regions of South India where the prevalence rate was 71%.[8] The study result had shown a higher percentage of self-medication practice was among females than males. It was similar to the study done in coastal regions of South India and Spain but contradicts the finding in the study done in North India. [8,11,9] This may be because females suffer

from many acute and chronic conditions than men and this has led to more drug use.[12]

Regarding self-medication frequency, 31.3% self-medicated once and 11.1% self-medicated more than five times in the past six months recall period. The findings were different when compared to the study done in coastal regions of South India in which 60% of the respondents self-medicated once.[8] Self-medication practice was high among non-skilled workers than students, skilled workers and retired persons. The predominance may be due to lack of knowledge and awareness on side effects and other complications associated with self-medicated drugs. There was a higher percentage of self-medication practices among literate respondents who have completed high-schooling than illiterates. This finding is not at par with another study in which self-medication practices was higher among illiterates.[13] Literates consider the illness as simple and most of the time self-medicate themselves to avoid unnecessary hospital expenses. Based on income, middle class family self-medicate more when compared to other income groups which was similar to the observations from a study done in china.[14]

Headache, fever, cough and flu are the most common reasons for self-medication among participants. Similar observations were also made in other studies.[10,13] NSAIDs was the most common drug consumed by self-medication which was at par with other studies.[9,15] The disadvantage with NSAIDs were improper use may cause gastritis and nephrotoxicity. Consumption of antibiotics by self-medication was also high in our observation. Irrational use of antibiotics may result in increased incidence of bacterial resistance.

Our study also focused on side effects associated with self-medication and co-administration of alternate system of medicine with allopathic drugs. The later was followed by 24.3% of respondents which was high when compared to the study done by Ahmad, et.al., in which there was a practice of 12%.[9] Though alternate system of medicine is mainly used for chronic ailments and considered less toxic, risk of drug interaction may be present with co-administration of allopathic drugs.[16] Forty-two respondents using alternate system of medicine were unaware of the drug interaction between co-administration of allopathic and alternate system of medicine. Nearly 46.1% of the respondents were unaware of the side effects associated with self-medication and 11.9% of the self-medicated individuals experienced side effects. The incidence was lower than the study done in France which was 17.6%.[17] Awareness on side effects due to improper use of medications should be created among general public to prevent untoward occurrences.

Similar to various studies done on self-medication practices, the source of drug was private pharmacy and the participants self-medicated because of the simpler nature of the illness.[9,18] Awareness of public on expiry date of Pharmaceuticals revealed 87.2% of the respondents checked the expiry date of Pharmaceuticals. Though Pharmaceutical laws are strict regarding the sale of expired products, it is the consumer responsibility to check for the expiry date at the time of purchase. The practice was appreciably good in the population surveyed.

Risks associated with self-medication are inaccurate diagnosis, inappropriate medication that causes side effects, masking of serious condition symptoms, inaccurate dosing and sometimes accidental overdose, risk of abuse and risk of developing addiction.[19] It is high time, awareness should be created on ill effects of self-medication among general public. Sensitization program should be conducted to private pharmacy firms regarding the medicines that can be sold as over the counter and prescription medicines. Hence life-threatening complications arising because of self-medication can be reduced. Urban and rural health centers can disseminate the information on ill effects of self-medication through health nurses to the households in the area to which they are allocated. Strict laws should be enforced to completely stop the OTC sale of prescription only medicines.

Table 1: Sociodemographic characteristics

S. No	Parameter	SM, Yes n (%)	SM, No n (%)	X^2	P value
1.	**Occupation**			21.02	0.0001*
1.a.	Non-skilled	107(47.3)	77(50)		
1.b.	Skilled	93(41.2)	43(27.9)		
1.c.	Retired	1(0.4)	13(8.4)		
1.d.	Student	25(11.1)	21(13.6)		
2.	**Education**			4.891	0.299≠
2.a.	Illiterate	10(4.4)	14(9.1)		
2.b.	Primary schooling	17(7.5)	9(5.8)		
2.c.	High school	85(37.6)	50(32.5)		
2.d.	Graduate	95(42.0)	64(41.6)		
2.e.	Post graduate	19(8.4)	17(11.0)		
3.	**Annual Income**			6.805	0.078≠
3.a.	<10000	80(35.4)	55(35.7)		
3.b.	10,000-30,000	99(43.8)	70(45.5)		
3.c.	30,000-60,000	12(5.3)	19(12.3)		
3.d.	>60,000	8(3.5)	2(1.3)		
3.e.	Students	27(11.9)	8(5.2)		
	Total	**226(100)**	**154(100)**		

*- $P<0.001$-Significant, ≠- $P>0.01$ – Not significant

Table 2: Illness for which self-medicated

S. No	Illness for which self-medicated	n	%
1.	Cough, cold, flu	92	40.7
2.	Fever	95	42
3.	Throat pain	15	6.6
4.	Headache	136	60.2
5.	Diarrhoea	7	3.09
6.	Others (conjunctivitis, asthma, constipation, ear ache, gastritis, myalgia, motion sickness)	70	31
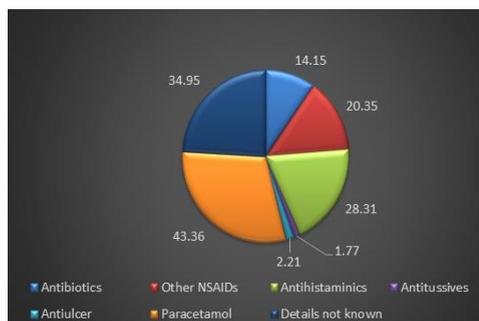
Fig. 1: Drugs consumed by self-medication
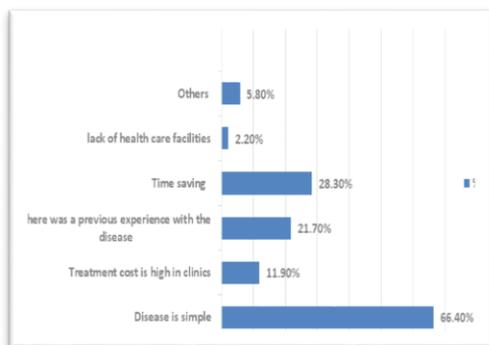
Fig. 2: Reasons for self-medication

Table 3: Source of Initiation for self-medication

S.No	Source of initiation	n	%
1	Own initiative	121	53.5
2	Family / friends / neighbours	92	40.7
3	Pharmacist (pharmacy shops)	26	11.5
4	Previous prescription	13	5.8
5	Media – Newspaper, TV, radio, etc	3	1.3

n – Number of respondents

Conclusion

Self-medication prevalence in the community surveyed is moderately high. Easy availability of prescription only drugs may increase the risk of side effects which may be restricted by effective laws. Joint efforts by the health careers including community pharmacists to educate the ill effect of self-medication among general public can help in reducing the practice of self-medication and betterment of the society.

References

1. Ahmad A, Parimalakrishnan S, Patel I, Kumar NV, Balkrishnan TR, Mohanta GP. Evaluation of self-medication antibiotics use pattern among patients attending community pharmacies in rural India, Uttar Pradesh. J Pharm Res. 2012;5:765–8.
2. World Health Organization; 2000. Guidelines for the regulatory assessment of medicinal products for use in self-medication. WHO/EDM/QSM/00.1. Available from: http://www.apps.who.int/medicinedocs/en/d/Js2218e/
3. Major C, Vincze Z, Mesko A, Balogh J, Zelko R, Nemeth E. Medicating outside the consulting room. Orv Hetil.2007;148(7):291-8.
4. Elsenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, et al. Trends in alternate medicine use in United States 1990-1997: results of a follow up national survey. JAMA 1998;280:1569-75.
5. Ernst E. Herb- drug interactions. Potentially important but woefully under researched. Eur.J.Clin.Pharmacology 2000;56:523-4.
6. Maharani.B, Paramesh Kalaiah. Attitudes and Knowledge of Medical Practitioners at Salem towards Pharmacovigilance Reporting System. National Journal of Basic Medical Sciences April 2013;3(4):294-300.
7. Berreni A, Montastruc F, Bondon-Guitton E, Rousseau V, Abadie D, Durrieu G, et al. Adverse drug reactions to self-medication: a study in a pharmacovigilance database. Fundam Clin Pharmacol. 2015 Oct;29(5):517–20.
8. Balamurugan E, Ganesh K. Prevalence and pattern of self-medication use in coastal regions of south India. BJMP 2011;4(3):a428.
9. Ahmad A, Patel I, Mohanta G, Balkrishnan R. Evaluation of self-medication practices in rural area of town Sahaswan at Northern India. Annals of Medical and Health Sciences Research. 2014;4(8):73.
10. Shankar P, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. BMC Fam Pract.2002Sep17;3:17.
11. Carrasco-Garrido P, Jiménez-García R, Barrera VH, Gil de Miguel A. Predictive factors of self-medicated drug use among the Spanish adult population. Pharmacoepidemiol Drug Saf.2008Feb;17(2):193–9.
12. Fillingim RB, King CD, Ribeiro-Dasilva MC, Rahim-Williams B, Riley JL. Sex, Gender, and Pain: A Review of Recent Clinical and Experimental Findings. J Pain. 2009 May;10(5):447–85.
13. Shveta S Jagmohan S. A study of self-medication pattern in Punjab. Indian Journal of Pharmacy Practice. 2011;4(2):43–6.
14. Yuefeng L, Keqin R, Xiaowei R. Use of and factors associated with self-treatment in China. BMC Public Health. 2012 Nov 17;12:995.
15. Keche Y, Yegnanarayan R, Bhoyar S, Agrawal R, Chavan R, Mahendrakar P. Self-medication pattern in rural areas in Pune, India. Int J Med Public Heal2012;2:7.
16. Ruiz ME. Risks of self-medication practices. Curr Drug Saf2010;5:315-22.
17. Adverse reactions to self-medication: is self-care effective? | Pharmaco Vigilance (Internet). (Cited 2017 Sep 1). Available from: http://www.pharmaco-vigilance.eu/content/adverse-reactions-self-medication-self-care-effective
18. Zafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M, et al., Self-Medication amongst University students of Karachi: Prevalence, Knowledge and Attitudes. J Pak Med Assoc 2008;58:214-7.
19. The Dangers of Self-Medicating [Internet]. Alternatives in Treatment - Drug Treatment Center Located in Boca Raton, Florida. 2015 [cited 2017 Aug 4]. Available from: http://www.alternativesintreatment.com/combining-drugs/dangers-self-prescribing-self-medication-prescription-otc-drugs-2.