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SELF MEDICATION – A SYSTEMATIC REVIEW

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ABSTRACT
Self-medication is a global phenomenon, and is one of the most common public health issues in many countries especially India. This review focused on prevalence of self-medication and reasons for using it. Source of information, major ailments contributing to self-medication and drugs used to treat them are detailed. It would be safe, if the people who are using self-medication have sufficient knowledge about its appropriate use. This shows that the public needs to be informed regarding the usage of medications, ill effects or adverse effects of self-medication. Benefits of self-medication overweigh the risk if the knowledge and attitude about self-medication in the community setting are increased. This can be done by proper education and counselling by the pharmacist to the patients who are practising self-medication.

KEYWORDS: Self-medication, Prevalence, Pharmacist.

INTRODUCTION
Self-medication has traditionally been defined as, the usage of allopathic, Ayurveda, unani, or home remedies on one's own initiative, or on the advice of another person, without consulting a doctor".[1]

Self-medication is one element of self-care. Self-medication is the selection and use of medicines by individuals to treat self-recognised illnesses or symptoms. (For the purposes of this definition, medicines include herbal and traditional products).

Responsible self-medication: This is the practice where individuals treat their ailments and conditions with medicines which are approved and available without prescription, and which are safe and effective when used as directed.

Responsible self-medication requires that: Medicines used are of proven safety, quality and efficacy.

Medicines used are those indicated for conditions that are self-recognisable and for some chronic or recurrent conditions (following initial medical diagnosis). In all cases, these medicines should be specifically designed for the purpose, and will require appropriate dose and dosage forms.

Such products should be supported by information, which describes:

- how to take or use the medicines,
- effects and possible side-effects,
- how the effects of the medicine should be monitored,
- possible interactions,
- precautions and warnings,
- duration of use,
- when to seek professional advice.[26]

Now-a-days, self-medication may be seen as the "desire and ability of people/patients to play an intelligent, independent and informed role, not merely in terms of decision making but also in the management of those preventive, diagnostic and therapeutic activities which concern them.[1] Self-medication comprises of intermittent or continued use of prescribed medications for some chronic or recurring illness.[6] The concept of self-medication which encourages an individual to look after minor ailments for simple and effective remedies has been adopted worldwide. The common sources of self-medication include Families, friends, neighbours, drug store or pharmacy, previous prescription, or suggestions from advertisement in newspapers or popular magazines are common sources of self-medications.[2] In majority of economically deprived countries, nearly 60%-80% of health related problems are treated through self-medication as lower cost alternative.[7] The other reasons for the self-medication include previous experience, time factor, transport facilities, mild nature of illness and convenience.[2] Illness contributing for the self-medication includes cold

and flu, fever, vomiting, headache, diarrhoea, myalgia, sore throat, oral ulcers, hyperacidity, generalized weakness, inability to sleep and stomach ache.[2], [3], [4] In developing countries like India, easy availability of wide range of drugs coupled with inadequate health services resulted in increased proportion of drugs used as self-medication compared to prescribed drugs. Although OTC drugs are meant for self-medication and are of proved efficacy and safety, their improper use due to lack of knowledge about their side effects and interactions could have serious implications especially in paediatrics and geriatrics and in conditions like pregnancy and lactation.[7] Lack of implementation of pharmacy regulation acts in India has contributed to this problem.

Class of drugs used for self-medication[4],[10],[11]

- Anti-diabetics
- Anti-hypertensive
- Corticosteroids
- Anti-asthmatics
- Antibiotics
- Analgesics
- Anti-pyretics
- Anti tussives
- Anti-histamines
- Anti-ulcer
- Anti-diarrhoeal
- Anti-emetics
- Eye/Ear drops
- Herbal remedies
- Topical preparations
- Multivitamins

Benefits of self-medication[1],[5]

- Time saving
- Reduced financial burden
- Increased convenience
- Easy and increased availability
- Cost effectiveness
- Easy availability of medication
- Self reliance in minor ailments.

Risks of self-medication[1],[5]

- Chances of drug abuse and misuse
- Risk of drug interactions
- Increased incidence of adverse drug reactions.
- Incorrect medication choice
- Increased drug resistance
- Chances of misdiagnosis
- Incorrect route of administration
- Failure to recognise and report ADR's
- Failure to recognise contraindications, interactions, warnings and precautions
- Risk of sub-therapeutic/overdose
- Increased drug dependence
- Breakdown of doctor-pharmacist-patient trust.

Role of pharmacist

Pharmacist plays a vital role in treating both minor and major illness. In past 20 years the role of pharmacist has changed from supplier to effective member involved in the provision of health care to public in providing them with assistance, advice and information about medicines.[9] The duty of the provider while responding to manifestations is to make clear the distinction between a minor illness and more serious condition in order to recommend the appropriate action which includes advice on non-pharmacological treatment and the use of a suitable OTC medication or advice to visit a health care practitioner.[10]

Pharmacist is expected to support patients in improving the medication adherence and help doctors rationalise their prescription but unavailability of pharmacists acts as barrier in rendering some of the pharmaceutical services. In Ethiopia 17% of the dispensers in community pharmacies were qualified pharmacists and the rest 27.8% were not professionally qualified.[21] In Tamilnadu registered pharmacists were present only in 46.36% of community pharmacies.[32]

OBSERVATIONS

Table 1: Prevalence of self-medication in various regions of world.[6],[17],[27],[28],[29],[30],[31]

S. No	Region	Prevalence (%)	Population (%)
1	Selangor, Malaysia	33.9	M-36 F-57.5
2	Amman, Jordan	42.5	M-50 F-50
3	Tanzania	55.6	M-50 F-50
4	China	45.4	M-49.2 F-50.8
5	Brazil	16.1	M-13.1 F-19.0
6	Egypt	86.4	M-45.6 F-54.4
7	Chile	75	M-27 F-73

M- Male, F- Female.

Highest prevalence was noted in Egypt and the second highest prevalence was found in Chile. The least prevalence was noted in Brazil. The common reasons are reduced access to health care, low income rates, increased economic burden, increased quantities of drug dispensing outlets resulted in increased use and accessibility of medicines by consumers. In Brazil, increasing prevalence of diseases arising from environmental degradation or pollution have intensified the practise of self medication.

Table 2: Prevalence of self-medication in different regions of India and Nepal: [12],[11],[13],[9],[14],[16],[15],[7]

S. No	Region	Prevalence (%)	Population (%)
1	Western Nepal	59	M-81 F-19
2	Sahaswan, Uttar Pradesh	50	M-66 F-34
3	Chennai, Tamilnadu	51.7	M-40.5 F-59.5
4	Puducherry, South India	57.7	M-52.7 F-47.3
5	Udipi Tulak, Karnataka	35.9	M-36.3 F-35.5%
6	Bangalore, Karnataka	40.5	M-49.5 F-50.6
7	Hyderabad, Telangana	30.5	M-83.3 F-16.6
8	Mandya district, Karnataka	17.1	M-80.8 F-23

M- Male, F-Female.

The wide variations amongst these studies are likely due to educational, socio-cultural and economic conditions. Prevalence of self medication was found highest in Pokhara valley, western Nepal due to hilly terrain in Nepal, the poor socio-economic status, high cost of modern medicine and non-availability of doctors in rural areas[12] where as in puducherry unemployment prevailed in spite of high literacy that lead to self-medication. Prevalence was found least in Mandya district, Karnataka and Hyderabad, Telangana.

The prevalence was found highest in males compared to females except in regions like Chennai (tamilnadu) and Bangalore (Karnataka). The probable reason for this was low response rate of females.[12]

Table 3: Age group wise categorisation of individuals in various regions of world: [6],[10],[27],[28],[29],[31]

S.no	Region	Age (years)	Percentage
1	Selangor, Malaysia	18-24 25-34 34-44 >45	27 36.3 52 27.9
2	Addis Ababa, Ethiopia	<20 21-30 >31	16.4 33.8 49.8
3	Tanzania	18-39 40-59 >60	67.3 26.0 6.7
4	China	18-20 21-40 41-60 >60	6.6 36.4 42.6 14.4
5	Brazil	0-9 10-19 20-39 40-59 >60	6.6 12.6 21.6 17.7 14.3
6	Chile	18-30 31-45 46-60 61-75 >75	12 33 31 20 4

In Malaysia and Chile highest prevalence of self-medication was noted in the age group of 30-45 years where as in Tanzania 18-39 year age group are practising self-medication. In China 41-60 self-medication is highest in the age group of 41-60 years and in Brazil it is highest in 20-39.

Table 4: Age group wise categorisation of individuals in different regions of India and Nepal: [6],[10],[27],[28],[29],[31]

S.no	Region	Age(years)	Percentage (%)
1	Pokhara valley, Nepal	10-19 20-29 30-39 40-49 50-59 >60	13.4 29.6 23.9 14.1 13.4 5.6
2	Bangalore, Karnataka	15-25 26-35 36-45 46-50 51-60 >60	20.1 26.8 21.2 13 6.3 12
3	Udipi, Taluk, Karnataka	18-30 31-39 40-59 >60	42.7 39.1 38.3 17.3
4	Puducherry, South India	<30 30-40 40-50 >50	22.3 20.5 18.8 38.4
5	Sahaswan, Uttar Pradesh	<16 35 60 >60	16 20 50 14
6	Hyderabad, Telangana	15-25 26-35 36-45	27.36 60.69 11.96
7	Mandya district, Karnataka	18-30 31-40	57.5 23.3

In Nepal the highest prevalence of self-medication was noted in the age group of 20-40. In Bangalore 25-45years was the age group that are highly using self-medication. In Uttar Pradesh 50% of self medicated people are older adults of 60 years age. In Hyderabad self-medication was highest in age group 26-35 years. Greater prevalence of self-medication among the younger generation could be due to better educational level.[12]

Table 5: Literacy rate in different regions of the world. [10],[17],[27],[28],[30],[31]

S.no	Region	Illiterate (%)	Literate (%)
1.	Addis Ababa, Ethiopia	30.7	Elementary- 31.5 Secondary-16 Higher education:21.8
2	Tanzania	6.0	Primary-32.7 Secondary-22.0 Tertiary-39.3
3	China	-	Primary-21.7 Secondary-21.4 Tertiary-50.8
4	Egypt	7.2	Primary-15.5 Secondary -43.1 Tertiary- 22.9
5	Chile	-	Primary-10 Secondary-37 Tertiary-12
6	Amman, Jordan	12.4	Secondary-9.4 High school-25.5 Graduation-52.7

Table 6: Literacy rate in different regions of India.[9],[18],[16],[13],[11],[15]

S.no	Region	Illiterate (%)	Literate (%)
1	Puducherry, South India	16.1	83.9
2	Barabanki , Uttar Pradesh	38.7	Primary-23.8 Secondary:21.4 Graduation-16.1
3	Bangalore, Karnataka	21.2	Primary-17.5 Secondary-7.1 High school-39.8 Graduation-14.5
4	Chennai, Tamilnadu	7.1	Primary-28.9 Secondary-12.3 Diploma-23.1 Graduation-28.6
5	Sahaswan, North India	40	60
6	Hyderabad, Telangana	33.3	Primary-27.7 Secondary-27.7 Tertiary-11.3

Self-medication was found to be significantly associated with education and occupation.[14] Tertiary literacy rate in India (17.23%) is less compared to other countries like Ethiopia, Tanzania, China, Egypt and Jordan. Reduced tertiary literacy rate may be the cause of increased self-medication.

Table 7: Type of medicine system availed in different parts of India.[18],[7],[13],[15],[16],[17]

S.No	Region	Allopathy (%)	Ayurveda (%)	Homeo (%)	Unani (%)
1	Barabanki, UP	69.6	13.1	10.7	6.5
2	Mandya, Karnataka	71.7	17.5	9.1	1.7
3	Chennai, Tamilnadu	90	-	-	-
4	Bangalore, Karnataka	87.15	1.83	-	-
5	Hyderabad, Telangana	77.7	11.11	11.11	-

Allopathy was the most trusted medicine system due to easy availability and quick relief.

Table 8: Reasons quoted for self-medication practise.[13],[17],[6],[14],[9],[7],[18],[11]

S.No	Region	Mild illness (%)	Previous experience (%)	Lack of time (%)	Unavailability of doctors/ hospital (%)	Financial constraints (%)	Ease and convenience (%)	Quick relief (%)
1	Chennai, Tamilnadu	-	6.4	-	23.6	40.8	26.8	-
2	Amman, Jordan	46.4	-	37.7	-	31.4	-	-
3	Bangalore, Karnataka	-	32.1	0.9	-	0.9	-	10.10
4	Udipi taluk, Karnataka	47	41.9	48.1	14.3	39.3	42.7	41.8
5	Puducherry, South India *NCD *CD	 - -	 19.2 38.4	 84.6 77.9	 42.3 3.5	 23.1 52.3	 92.3 86	 - -
6	Mandya, karnataka	-	71.7	78.3	30.8	95	77.5	85
7	Barabanki, UP	39.9	-	45.2	-	42.3	25	
8	Sahaswan, North India	15	9	-	8	40	-	-

NCD- Non communicable diseases, CD- communicable diseases.

Financial constraints was the major reason in Chennai, Mandya and Sahaswan regions where as in Udipi, Puducherrry and Barabanki lack of time was the factor contributed to Self-medication. Mild nature of illness in Jordan and previous experience in Bangalore were the contributing factor for self-medication.

Table 9: Source of information about self-medication.[11],[18],[13],[7],[15],[18]

S. No	Region	Pharmacist / Chemist (%)	Previous prescription (%)	Advertisements (%)	Friends/ family/ neighbours (%)	Others (%)
1	Sahaswan, North India	22	15	25	33	5
2	Barabanki, UP	38.1	72.6	19	52.4	-
3	Chennai, Tamilnadu	47.4	23.1	-	13.3	15.9
4	Mandya, Karnataka	65	-	9.2	25.8	
5	Hyderabad, Telangana	41.02	60.68	27.35	-	-
6	Bangalore, Karnataka	18.35	6.42	-	-	9.16

Pharmacist frequently serves as public's first point of contact in health care system. Pharmacist/ chemist were the common source of self-medication in Chennai, Mandya and Bangalore. In Jordan, Barabanki and Hyderabad, previous prescription was the major source of self-medication. Inaccessibility and unavailability of doctors might have tempted people to use previous prescription.[18] Patients prefer to avoid expensive diagnostic investigations and simply be prescribed medicines. This shows both inability to pay for investigations and unwilling to return to healthcare provider for further management.[8]

Table 10: Indications for self-medication.[13],[16],[15],[7],[18],[11]

s. no	Illness	Region					
		Chennai, Tamilnadu (%)	Bangalore, Karnataka (%)	Hyderabad, Telangana (%)	Mandya, Karnataka (%)	Barabanki, UP (%)	Sahaswan, UP (%)
1	Cold	73.02	-	-	55 (Includes cough)	-	7 (Includes cough)
2	Fever	32.2	78.89	82.9	75.8	72.6	14.5
3	Cough	4.6	-	82.9	55 (Includes cold)	-	7 (Includes cold)
4	Gastric symptoms	17.75	1.82	41.88	34.2	32.7	12
5	Pains	51.97	7.33	88.02	Headache-56.7 Body pains-60	Headache-40.5 Pain-64.3	23.3
6	Skin and wound care	10.52	-	-	-	-	12.2
7	Sleep disturbance	0.65	-	-	20	-	0.7
8	RT symptoms	-	-	27.35	-	57.1	11.7
9	Diabetes	-	8.24	-	-	-	1.8
10	Infections	-	-	-	10	45.2	13
11	Cardiac problems	-	-	-	-	-	2.1

Table 11: Class of drugs used for self-medication.[18],[7],[9],[16],[12],[11]

S.no	Drugs	Barabanki, UP (%)	Mandya, Karnataka (%)	Puducherry, South India (%)	Bangalore, Karnataka (%)	Pokhara valley, Nepal (%)	Sahaswan,UP (%)
1	Anti biotics	32.7	25	65	4.58	-	16.7
2	Analgesics	39.9	-	85	59.63	23.1	25.3
3	Anti pyretics	56.5	90	87	-	43.1	-
4	GI agents	40.5	-	-	1.83	6.2	20.8
5	Cough and cold remedies	33.3	51.7	-	-	10.6	19.7
6	OHAs	-	-	38.5	12.84	-	4.16
7	CV drugs	-	-	26.9	-	-	4
8	Corticosteroids	-	-	-	-	-	15
9	Anti-asthmatics	-	-	-	-	-	14.7
10	Eye/ear drops	-	-	-	-	-	10
11	Sedatives	-	9.21	-	-	-	-
12	Topical agents	-	-	-	-	-	11.8
13	Herbal remedies	16.1	22.5	-	-	8.7	12
14	MVT	-	34.2	-	3.66	-	8.2

Pharmacist actions and advice to patients approaching for self-medication

People who practice self-medication may not be adequately knowledgeable to judge the choice, dose of drug and duration of treatment hence pharmacist may have an important role to play in helping people seeking self-medication, but a small percentage of pharmacist provide appropriate services when consulted.[7]

75.9% of the pharmacist dispense antibiotics without prescription, only 4.5% ask queries regarding drug allergies. Instruction on side effects of drugs is provided by 15.9% of pharmacists. 18.2% of pharmacist give non pharmacological advice. Instruction on need to visit doctor was given by 22.4% of pharmacists.[10]

Rules and Acts in Various Countries

India[5]

Drugs and cosmetic rule 1945

Rule 65 of this act stipulates sale of drugs under the supervision of registered pharmacist which also involves signing of the bill and stamping of the prescription by the pharmacist and the doctor.

Pharmacy act 1948

According to sub section 1 of section 42 of this act, "no person other than registered pharmacist shall compound, prepare, mix or dispense any medicine and the prescription of a medical practitioner."

Malaysia: The rules and acts in Malaysia can be obtained from the website https://www.pharmacy.gov.my/v2/en/documents/sale-drugs-act-1952-and-regulations.html

China: The rules and acts in China can be obtained from the website http://eng.sfda.gov.cn/WS03/CL0766/61638.html

SUMMARY

In this study, 25 articles on self-medication were reviewed and the literature demonstrated that there is widespread use of self-medication in urban areas. The use of self-medication was highest in 18-35 years and in Males.

The prevalence of self-medication was high in Literates compared to illiterates. Allopathic drugs were the common mode of self-medication. The potential reasons for self-medication were previous experience and financial constraints. The factors that most commonly influenced people's choice of self-medication were pharmacist and previous experience with similar ailments. Self-medication use was reported to be highest in case of fever, pains and gastric symptoms. The most common class of drugs used as self-medication include antipyretics, analgesics and antibiotics.

In addition to various articles detailing high prevalence of self-medication, there were few articles relating to awareness, opinion and outcomes of self-medication. Hence it would be helpful to have further research at community level exploring greater depth on people's perceptions regarding inappropriate medication use, awareness, and outcomes of self-medication and assess pharmacist role in self-medication.

Major problems related to self-medication are wastage of resources, increased resistance to pathogens and causing serious health hazards such as ADRs and prolonged suffering.[1] Self-medication may lead to delay in diagnosis of underlying conditions and appropriate treatment.[16] As the common source of self-medication is pharmacist, He/she can play vital role in preventing self-medication by providing the information on warning symptoms, suggest an appropriate expert in that area of interest (department) for patients who need urgent medical care. Pharmacist should ensure that the patients receive safe and effective treatment to achieve proposed health outcomes. This can be achieved by proper education and counselling by the pharmacist to the patients who are practising self-medication.

CONCLUSION

There is a need to study the inappropriate dispensing of medicines and its consequences so that unhealthy outcomes are prevented. There is a need to amend or make new laws so that healthy goals are attained and a proper interaction between the care givers, medical professionals, patients and the pharmacist is facilitated. The practise of self-medication poses challenges such as adverse effects, which often go unreported. This can be addressed by making pharmacovigilance mandatory at all levels.

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