



INSIGHTS INTO SELF-MEDICATION

Review article

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Abstract

Self-medication is a global phenomenon. It is also ambiguous and is increasingly being practiced worldwide for different reasons. We live in a world where health awareness, consciousness, and adoption of preventive behaviours are a growing norm both among the young and older individuals. On the one hand, it is viewed as a large component of self-care, which relies heavily on the consumer's expertise in terms of experience of the consumer, when it comes to medication use. In recent times, it has been extensively debated in developing countries where the associated risk factors have been highlighted in almost every survey carried out.

In countries like India, self-medication is being practiced both with prescription and non-prescription drugs (also known as over-the-counter drugs). Medicines for self-medication are often called non-prescription or "over-the-counter" medicines (OTC) and are available without a doctor's prescription through pharmacies (Source: Responsible self-care and self-medication, Review of worldwide consumer surveys. www.wsmi.org). In developing countries, it becomes important to understand the phenomenon within economic-infrastructure and cultural-cognitive contexts.

A detailed literature review based on survey findings on self-medication in developing countries was carried out. This was done to understand, evaluate and analyse the factors leading to self-medication with a view to explain the phenomenon as it occurs. Findings were listed as common and unique depending on their probability of occurrence. Some common reasons emerge for self-medication through cross sectional surveys these being, time saving, quick relief, cost saving, intensity of symptoms and lack of accessibility to healthcare.

Self-medication as a form of health behaviour is unique because it is region and context specific and can be manifested in various forms hence prompting a deeper understanding into this phenomenon.

INTRODUCTION

'Self-medication' is a global phenomenon. Put simply, it can be defined as the consumption of medicines by an individual either by prescription or OTC without consulting a physician. Self-medication is synonymous with OTC usage in the west as is also evident in the kind of research that takes place. However, in India and many other developing countries, it is viewed as more of a social ill since medicines can be misused or even abused many a times resulting in serious and sometimes adverse consequences to the consumer. India is a diverse country with different cultures, practices and health related beliefs. These need to be understood when one wants to study self-medication practices. Belief in external influences, even doctors will vary from across age groups, gender, socio-economic profile etc. Again, the kind of medicines used for everyday symptoms can range from allopathy to homeopathy, Ayurveda or unani. We have a unique blend of different systems of



medicine and there can be cases where a single individual will indulge in self-medication with meds across categories not being completely aware of the risks and benefits. Again, the motivation to self-medicate could range from quick symptomatic relief, ease of availability of cheaper drugs or a temporary cure. Another issue prevalent is the use of both prescription and OTC drugs for self-medication. The proportion for a single individual will vary, but the problem arises when there are side effects associated with such medicine usage and neither stakeholder can be held responsible in such cases.

There could be various forms of self-medication across varied age groups/ segments in the population, rather self-medication can manifest itself in various forms for example: (associated behavioural responses)

Incomplete course of medicine, frequency of dosing, changing the brand, adjusting the dose based on convenience. These are not to be confused with patient compliance or adherence.

RESEARCH OBJECTIVE/PROBLEM FORMULATION

As a phenomenon, self-medication is unique and can be studied as a health behaviour in individuals. To understand this phenomenon in entirety one needs to understand its many manifestations and the context in which it is experienced. Like most health behaviours it can be region and culture specific. Self-medication can be understood as a response by an individual to take care of everyday common place symptoms. The process can be understood from a systems perspective, wherein certain input variables affect the individual's decision to self-medicate. These could be measured accordingly. Some of these can be internal to an individual like his demographic characters, attitude, beliefs and other characteristics. On the other hand, certain external influences shape his/her decision to self-medicate. These could be influence of social groups, peers, information available from various sources etc. The third aspect that governs his/her behaviour of self-medication could be an interaction of both these influences at an individual level which might be difficult to measure or predict. For example: there could be some influences from within a family background that could make an individual averse to self-medication. Keeping all other inputs constant, these might work stronger at the individual level thus affecting his/her response. An understanding of self-medication practices across varied age groups, can give insights into these underlying influences. This understanding can help shape future interventions directed towards responsible self-medication.

Studies/surveys conducted in the past in developing countries have revealed some common and a few unique insights with respect to the following:

- a. Categories of most commonly used medicines for self-medication
- b. Reasons for self-medication
- c. Pattern of self-medication in the young including children and the elderly

The objective of this literature review is to compile, understand and evaluate the various predisposing factors that lead to self-medication in developing countries. This serves the basic purpose of understanding the phenomenon. Besides, an analysis of the factors as emerging from the surveys helps to predict any kind of relationship among the factors as well as between the factors and the phenomenon. Every survey considered is unique and specific with respect to its findings, however there are commonalities when we look at the reasons behind self-medication.

INCLUSION/EXCLUSION CRITERIA

Since this field of research is multidisciplinary, there is a need to look across research papers, review articles and case studies to find relevant information that can be analysed in totality. Articles are included on the basis of types of surveys conducted, Sample size, research methodology adopted and findings. Surveys conducted in



the west were deliberately not included to take into account the economic and infrastructural contexts unique to developing countries.(4)

METHODOLOGY

Across the literature search carried out, papers were coded with respect to category for example S for surveys, T for theory, G for General and the like. Research papers and other literature was obtained by a comprehensive search on research databases like google scholar and Ebsco. The methodology adopted for the literature review was on the following lines:

Introduction to the Phenomenon

General findings from surveys

Specific findings

- Demographic- Age, gender, income
- Therapeutic category wise- antibiotics

Problems/Limitations of surveys

DATA COLLECTION

In a study (prevalence survey) conducted in 19 countries in Europe (S1 Self-medication with antimicrobial drugs in Europe; Larissa ,Flora-Journal of emerging infectious diseases 2006) , 1000-3000 adults were studied with respect to their self-medication habits with antibiotics both in urban and rural areas . Actual and Intended self-medication was studied. Respondents were classified as self- medicating if they had taken meds without consulting physician or a nurse in the past twelve months. Self – administered questionnaires were used to find out both self-medication and at risk self-medication habits. Sources of meds for self-medication were usually pharmacies without prescription followed by left over meds. The mean response rate in the study was 40%. Penicillins constituted 54% of usage across all countries. Common conditions for self-medication were bronchitis and throat symptoms.

In a cross sectional study carried out in coastal regions of south India (2), it was found that almost 71 % of the participants (total 200 in number) indulged in self- medication. This sample consisted of both urban and rural community and 70% of the people were literate. The most common reasons cited for self- medication were lack of time to visit a doctor followed by minor illness and quick relief.

In a different kind of survey done in adolescents in 1998 (S12 Self administration of OTC meds for pain among adolescents; Christine Chambers; APAM 1997) 651 high school students were given a questionnaire to assess the prevalence of self-medication especially with regard to pain management. Widespread self-medication (58.7-95.9%) for pain, was noted. Importance of correct information was highlighted in this survey, medicine use for different kinds of pain was studied. (head, stomach, ear and throat and menstrual), sources of otc meds was usually found to be parents and home medicine cabinets, information sources cited were parents , bottle and package ,physicians and nurses ,siblings, adult friends , media and teachers. Self-administration increased with age, higher levels of pain frequency and intensity were related to higher levels of self-administration is for all types of pain except muscle, joint and back pain.

When we look at surveys done with respect to a common category like antibiotics , for example in Indonesia, (S21 SM with AB's in Indonesia; Widayati et al, BMC Research Notes 2011) a cross sectional survey carried out on 559 adults over 18 years old , multi stage clustered random sampling was done and both intent and actual SM were studied. It was found that there was no significant association between socio demographic



variables and practice of SM. However, gender, Marital status and health insurance were significantly associated with intent to self-medicate.

Similarly, in a descriptive cross – sectional survey done in UAE in April 2006, a structured validated questionnaire was used for 860 participants. Antibiotic usage was classified as Group A: Common use, Group B: restricted use (expensive, toxic meds) and Group C: Antibiotics used in PHC (Primary Health Centres). Amoxicillin was the most commonly used antibiotic, common reasons for SM being influenza, general infection, and toothache, and URT, GI and ear infection. Prevalence was high (44%) which could be attributed to many factors including the fact that this country is composed of many nationalities including India, Philippines and the Arab countries.

(●SM- self-medication, ●OTC-over-the-counter, ●docs-doctors, AB-Antibiotic)

Study No.	Survey Type	Paper	Author	Methodology	Findings (General)
1	Prevalence	S1 "Self-medication with antimicrobial drugs in Europe	Larissa, Flora Journal of emerging infectious diseases 2006	Self-administered questionnaire-use of antibiotics in the last 12 months was studied	Mean response rates for 19 countries-40% Rates of at risk self-medication higher in southern and eastern Europe than in northern and western Europe
2	Exploratory Descriptive survey	S2 Online exploratory study of SM practices among pharmacy graduates in India	Pahuja Ritu IJDDR 2011	Questionnaire by email data on OTC meds and attitudes towards SM and SM practices	analgesics and antipyretics most common followed by cold meds common notion - not having to consult doctor for minor ailments convenience of buying meds OTC from nearby store
3	Descriptive Survey	S3 Evaluation of perception, attitude and	S.Kayalvizhi , IJEIMS,2010	Baseline characteristics	Perception- advantages like time -saving, no



		practice of SM among business students in South India		measured Perception Attitude and Practice	need to visit doctor ,economical, quick relief,
Study Type	Survey Type	Paper	Author	Methodology	Findings
4	Descriptive	S4 Evaluation of SM among professional students in North India	Rohit Verma, Asian Journal of Pharmaceutica l .and Clinical Research	questionnaire-type of medicine system category of medicines name of particular medicine prevalidated	Time saving, did not need advice for minor ailments. economic, fear from crowd at clinic Trust in allopathic medicine followed by homeo and Ayurveda (students),learnt SM through previous prescription of their doctors., common categories- headache , fever, cough and cold ,GI infection and mouth ulcers and throat infection
5	Prevalence	S5 Factors influencing the pattern of self-medication in an adult Nigerian population	A.o.Afolabi, Annals of African Medicine	205 market women multistage stratified sampling market women -main providers of healthcare sell goods in stalls	patient medicine dealers-main source of information, (married women),recognitio n of trade and generic names, patients felt it cured their ailment and saved time and



					money, medicines used in combination education-main factor
6	Cross sectional real world survey	S6 Consumer usage patterns of non-prescription H2 receptor antagonists	Shi, Gralnek, Dulai American journal of Gastroenterology	modified Anderson Behavioral model Factors affecting consumer decision-advertising, friend's advice, and demographic characteristics.	Off label use more with low income group of people, lack of health insurance and lack of time to see a physician, belief that OTC Hra is cheaper
7	Multi-center study	S7 Responsible self-medication in Latin America content	Hector Bolanos, Drug Information Journal 2005	structured questionnaire1 st -types of products ways in which they were known from where they were purchased period of time and where they got information about the products 2nd- perception about non-prescription products	main therapeutic categories: analgesics Antibiotics, nasal decongestants, muscle relaxants, antifungals. non-prescription meds are perceived safe by Latin Americans, 73% agreed that they are as safe as prescription meds



8	Cross –sectional observation study	S8 Self-medication patterns in Amman, Jordan	Yousef, Bakri, Pharm World Sci, 2008	questionnaire- 3 parts A- Demographic data B- information regarding meds on day of interview C-reasons for not consulting a doctor	age is a significant factor , Less than 16 and older than 60 less tendency to self-medicate, 91% said they read labels the first time they buy, and they understand these labels
9	Cross sectional study	S9 Self-medication among university students of Karachi: Prevalence, knowledge and attitudes	Zafar, Syed , Journal of Pak Med Association	Questionnaire- 3 parts 1- demographic details 2- prevalence and practice 3- attitudes	no significant difference in SM between medical and non-medical students, high % altered dosage of drug depending on course of symptoms
10	Descriptive Study	S10 A study of self-medication among the people of Bhopal region, India	Malvi Reetesh, IRJP 2011	Questionnaire- 31- demographic 2- medical history (system of meds) 3- condn. In which people use SM	high consultant fee -reason for SM, allopathic drugs used more , most preferred use of branded over generics



11	Public opinion survey	S11 Societal perspectives on over the counter meds	Family Practice 2005	Questionnaire: attitude towards community pharmacy. attitude towards use of OTC meds views of OTC meds in terms of safety effectiveness Exploration of knowledge on appropriate use of OTC meds.	public had high level of awareness of abuse of OTC drugs(85%), factor influencing purchase of OTC - recommendation by pharmacist, 74% - followed directions on OTC package
Survey No.	Study Type	Paper	Author	Methodology	Findings
12	In-person survey	S12 Self administration of OTC meds for pain among adolescents	Christine Chambers APAM 1997	What is the prevalence for OTC's for different kinds of pain? From where are medicines and info for these meds obtained? What level of responsibility do students have for self-administering pain relievers?	Self-administration was high across different types of pain, increased as per age with respect to not consulting adults before use, SM from 11-12 years on, pain prevalence rates higher for girls than boys linked with higher rates of self-admin.
13	Descriptive cross sectional	S13 SM with AB's in UAE	Abu-Bakr Abasaheed,	Why and how AB'S were	antibiotic use significantly



	study		Journal of Infect Dev. Ctries 2009	obtained whether they stored them at home? Do they intend to use them for themselves or their children?	affected by age and education not gender amoxicillin most commonly used common reasons- influenza, general infection toothache,URT, GI , ear infection
14	Cross sectional study	S14 comparative study of evaluation of SM in medical students	Sontakke SD Int J Biol. Med. Res.2011	Awareness of OTC and side effects	Analgesics and antipyretics most commonly used for SM common advantages- time saving, easy availability convenient and economical Disadvts. ADR's, lack of knowledge about dose frequency of admin. And chances of taking wrong dose
15	Cross sectional comparative survey	S15 Self-medication with Antibiotics by Pakistani students in Finland	Rizwan Khan, Master thesis	How many AB's were used in their lifetime? Whether prescribed or not? SM how often, how much? sources of AB's which route , which symptoms results of open ended questions analyzed	From 85% population who used antibiotics every second person reported un prescribed use. % difference between those who considered SM safe and not safe was not appreciable sources of AB's for SM- pharmacy, family, friends and leftovers



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Survey No.	Study Type	Paper	Author	Methodology	Findings
16	Randomized cross sectional Multicenter study	S16 Prevalence of SM and health seeking behavior in a developing country	Shahzad Husain, African journal of pharmacy and pharmacology	Rural and urban households- follow up for 12 weeks Use of modern drugs studied	modern drugs were available in 64.2% of households, almost every pharmacy sells drugs without a prescription, drug retail outlets major source for SM
17	Cross sectional survey retrospective medical records	S17 Profile of AB drug use patterns in a Nigerian metropolitan city	Enato, Uwaga, intl.J of health research mar.2011 ijhr_2011	AB SM practice-self-administered Q 1200 medical files convenient sampling method	Metronidazole, amoxicillin, cotrimoxazole, malaria, URT, otitis media, skin rash-common symptoms reasons-cost of seeing a med. Practitioner. Need to save time, easy access to AB's, no need to see a med. Practitioner. community pcy, patent shop and left over meds common sources of meds
18	Multi stage stratified	S18 Statistical study on SM pattern in	Pankaj Jain, Indo global J of Pharm.Sciences	Questionnaire Demographic	Reasons for SM-emergency use, not serious disease,



	sampling	Haryana, India	2012	prospective SM	prevention and prior experience. 51.1% had care from public/private facility before resorting to SM
19	Descriptive cross sectional study	S19 SM practices among Health science students	Girma Belecha Gutema, J of applied Pharm. Sciences 01(10) 2011	2 step stratified random sampling pretested questionnaires	prevalence of SM among females is low, prior experience and mildness of illness
Survey No.	Study type	Paper	Author	Methodology	Findings
20	Prevalence survey	S20 SM and non-doctor prescription practices in Pokhara valley, Western Nepal	P R Shankar, P Partha and N Shenoy BMC Family Practice 2002	obtain baseline data information on factors association of self-medication and non-doctor prescribing with demographic factors	compounder and health assistant -common sources ,variety of herbs and medicinal plants - role in SM, Non accessibility of doctor commonest reason for SM, 46%-fever and headache
21	Cross sectional survey	S21 SM with AB's in Indonesia	Widayati et al, BMC Research Notes 2011	Questions symptoms for which AB was used types of antibiotic duration of use	no significant association between socio demographic variables and practice of SM gender , marital status , health insurance



				price paid reasons for SM, sources of SM and sources of information for SM	were significantly associated with intent to self-medicate
22	Survey method prospective cross sectional study	S22 Prospective study of SM and consumer's drug knowledge in Addis Ababa	Tenaw Tadege, Thesis for MS (Pharmaceutics) 2002	Q form A-actual drug consumers-3 parts Q form B-messengers 2 parts 1st part of both-demographic 2nd part -types of illness, drugs used 3rd part-drug knowledge	reasons for SM-disease not serious emergency care prior experience to illness less expensive in terms of time and money prevention of known/unknown symptoms of illness
23	Survey	S23 Relationship of consumers perceptions of drugs to drug use	Joyce L. Grahn , Public Health Reports, 1983 Vol. 98 No.1	Perceptions towards prescription and OTC and relationship of these perceptions to drug use	Rx drugs were rated safer and effective than OTC but more side effects than OTC consumers -more positive perceptions of Rx and OTC experience was the reason given for safety effectiveness and side effects.
24	Mall intercept and Mail survey method	S24 Factors contributing to purchase of OTC drugs in Bangladesh	Mujahid Babu	factors affecting purchase of OTC drugs	Company's promotional activity past experience with drugs company and brand image safe to use distrust with physician prior assumption of physician's prescription.



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Observations and Findings:

Most of the surveys carried out are either prevalence or of the cross-sectional type. Here, the question arises whether qualitative information taken at a single point in time is really sufficient to make any specific conclusion regarding self-medication. Also, sample size and methodology adopted varies across surveys, hence it becomes difficult to generalize the findings. It is interesting to note that antibiotics are the most widely studied therapeutic category with respect to self-medication.

After a thorough review of surveys listed, certain common findings are listed in the General category. Some of the surveys and research papers also come up with specific findings which could be used to explain research gaps, thus providing inputs for future research.

General	Specific
Analgesics and antipyretics, most common followed by cold meds. Common notion -not having to consult doctor for minor ailments. Convenience of buying meds OTC from nearby store	Significant association between behavior of keeping AB's at home and age, males exhibited more of this. (S13)
Perception- saving time, being economical and providing quick relief .knowledge of benefits and risks not adequate .time saving, did not need advice for minor ailments. Economic, fear from crowd at clinic	females practiced SM more than males.(S19) trust in allopathic medicine system high (S4)
Factors: previous experience with similar symptoms. Self-perception of trivial nature of problem. Symptoms- headache, fever and flu drugs-pain killers, antibiotics, antiallergics drugs source-pharmacy, friends ,stocks at home	LA consumers-great deal of familiarity with their meds(S7) 1.previous medical indication 2.recommendation by a friend 3.recommendation by clerk/pharmacist
Type, extent and reason for SM varies from country to country due to socioeconomic and socio demographic factors headache, common cold reasons-prior experience with similar illness minor illness and avoid long waiting times at the doctor	Distance plays a vital role in use of health facilities.(S20)



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