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Review Article

Self-medication in Underserved Population in India: A Review

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ABSTRACT :

Self-medication is a common practice in treating symptoms due to acute and chronic illnesses. It is a significant health dilemma in India. Exposure to advertising, low level of literacy, short duration of ailments, leftover medications, geographical barriers, embarrassment, affordability and health insurance are reasons for individuals opting for self-medication. Underserved populations in India are more likely to experience or accept self-medication due to these reasons. The major problem with self-medication is misdiagnosis, which can further perpetuate more complications. Furthermore, treating adverse events from self-medication can financially burden individuals and the healthcare systems alike. Healthcare professionals such as pharmacists can play an important role in minimizing the risks associated with self-medication through appropriate counseling and dissemination of accurate information to their patients. Recommendations for minimizing risks of self-medication include, increasing healthcare education for the public; especially the underserved populations, creating and reinforcing stricter government regulations on advertisements by drug companies, improving knowledge and comprehension of the side effects for drugs, increasing better communication between patients and healthcare providers, and improving access and quality healthcare for underserved populations. This review focuses on the reasons why individuals practice self-medication, the risks involved, and discusses possible recommendations for alleviating those risks related to self-medication.

INTRODUCTION:

Self-medication, a form of self-care, involves the use of medications without consulting a doctor or a pharmacist to treat self-diagnosed disease, symptoms, or minor health ailments [1]. Patients can self-medicate for acute conditions such as cough and cold, and chronic conditions that are cardiovascular or psychiatric in nature. Some of the factors that lead to self-medication are lower educational level, lower socioeconomic status, lack of regulations, easy availability of medications and exposure to medication advertisements [2]. Often times, self-medication can save time and money for patients [3]. However, it also poses a significant burden on the healthcare system and the patient due to the inappropriate usage of medications resulting in adverse events.

Individuals hold the view that medications should be used in the case of any sickness or discomfort. When people self-medicate, they assume more responsibility for their own health and disease-prevention practice. Self-medication is commonly practiced for minor health ailments to obtain simple and effective treatment [4]. Trade names of drugs are common means of identification of drug products. The common sources of drug information are medical practitioners, chemists, newspaper advertisements, previous self-medication related experiences of family members, and TV commercials [5]. Healthcare professionals such as pharmacists can play an important role in minimizing the risks associated with self-medication by counseling their patients and disseminating accurate information to them on appropriate use of medicines [6].

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Table 1: List of drugs used for self-medication [7,8,9,10,11]

S. No.	Category	Drugs
1	Antihistamines	Chlorpheniramine and Diphenylhydrazine
2	Expectorant	Carbocysteine and Bromhexine
3	Bronchodilators	Salbutamol, Ketotifen and Omalizumab
4	Anticholinergics	Scopolamine
5	Alkylamines	Cyclominol and Colimex
6	Nutritional product	Vitamin B complex and Calcium+ vitamin D
7	Antibiotic	Penicillins, Amoxicillin, Co-amoxiclav, Metronidazole and fluoroquinolones
8	Cardiovascular	Nifedipine, Diltiazem, Digoxin and Dobutamine
9	Topicals	Diclofenac gel
10	GIT	Cimetidine, Misoprostol, Ranitidine and Omeprazole
11	Antituberculous	Ciprofloxacin, Ofloxacin, Clarithromycin and Cycloserine
12	Analgesics	Paracetamol and Diclofenac sodium
13	Anti-inflammatory	Mefenamic acid + paracetamol and Indomethacin
14	Sedatives	Diazepam, Alprazolam and Flurazepam
15	Hematinics	Redisol and Biocobal
16	Corticosteroids	Pulmicort, Rhinocort and Budenase

Reasons for Self-Medication:

1. Exposure to Advertising

According to the Drugs and Magic Remedies Act of 1954, Indian drug companies cannot advertise their products via different forms of media. Yet some pharmaceutical companies still advertise medications intended for sexual pleasure, cancer, heart disease, and menstrual flow [12]. Many uneducated and educated people in India obtain their knowledge about medications from different sources of media and blindly follow the practice of self-medication without first consulting a physician or pharmacist for appropriate use. Pharmaceutical companies also use celebrity spokespersons making false claims in order to promote their product. In this way, the consumers' choice for medication is directly affected by the advertisement. These companies only promote the beneficial effects of their medications and do not highlight the serious side effects of continual and improper use to the consumers. The Drug Controller General of India (DCGI) has proposed to stop the advertising and sale of drugs directly to the consumer as OTC medications, and instead has proposed that they be sold as prescription medications.

Advertisements have a striking effect on consumers [13]. Newspapers are a medium of information favored by literate people; however, a larger population can be targeted via broadcasting television advertisements all across India. Pharmaceutical companies use various schemes and giveaways tagged with the purchase of their product. For example, consumers may be enticed to purchase a two pack instead of single pack, in order to receive a free 8GB memory card or a money back guarantee. Furthermore, television advertisements can portray a drug product as safe and effective through persuasive audio and visuals. People who cannot read may rely as well on audio and visual cues to help guide comprehension of information presented. This lack of oversight and censorship of television advertisements of drug products is likely due to poor enforcement of laws in India.

According to a survey of advertisements published in ten different newspaper outlets of North and South India, 78 out of 82 advertisements were about Ayurvedic medicines, 2 advertisements were about homeopathic medicines, and 2 were about Unani medications [13]. Therefore, television advertisements can be misleading the consumers in choosing appropriate products due to false or misleading advertisements. A common perception of people is that herbal medications do not have any side effects. On the contrary, a report by Centers for Disease Control and Prevention (CDC) found that lead poisoning occurred during pregnancy in six cases in New York City due to usage of Ayurvedic medications manufactured by big Indian Ayurvedic companies. [13]. There should be quality control measures integrated into the manufacturing of medicines sold on a large scale. The government should tightly enforce the laws for proper drug advertising in order to prevent people from buying these medications without full knowledge of medicines and consultation with a medical professional.

2. Lower Educational Level

Literacy plays a major role in an individual's ability to choose appropriate self-care, while minimizing the risks associated with self-medication. The level of education acquired can influence an individual's ability to: identify and select correct medications, acquire medications from either a hospital/pharmacy or local medical vendor, assess symptoms in either acute or chronic conditions to make an appropriate medication choice, and understand the adverse risks involved in self-medication. According to a study conducted in adult Nigerian population assessing factors such as education level and the recognition of medications, it was found that more than half the study population identified trade and generic names of medicines as the most common means of recognition, and approximately one fourth of the study population recognized medicines by their common usage names and by color [15]. Study participants with post-secondary education were significantly more likely to recognize medications by trade or generic names as well as obtain medications from hospitals or pharmacies. On the other hand, study participants who were illiterate or had lower education were more likely to procure medications from "patent medical stores" (OTC drug stores) and local hawkers [15].

3. Short Duration of Ailment

Common conditions requiring self-medication are skin conditions, general health care, acne, pain, problems of the eye, mouth, gastrointestinal, and respiratory tract. A reason for self-medication for a condition such as acute non-specific diarrhea is that the ailment runs for a short duration, and can be treated symptomatically with non-prescription medications and adequate hydration. As a result, acute non-specific diarrhea does not require regular visits to physician's office.

Basic knowledge about the proper way of dealing with drugs and the potential dangers of self-medication might be both insufficient and underestimated by patients. A Nigerian study of infants suffering from acute respiratory infection showed that 32% of the infants had been treated with cough medicines, 42% with antipyretics, 5% with antibiotics, and 10% with hematinics before they were brought to the clinic [16]. The infants showed increased severity in their symptoms and were presented late for clinical diagnosis. Prevalence of antibiotic related self-medication is 17% in rural India and 37 % in urban India [17]. According to the Indian Drug and Cosmetics Act of 1945, sale of antibiotics and prescription drugs, which are a part of schedule H, by a non-chemist and without a valid prescription are banned in India.

4. Leftover Medications

Another means of self-medication is the use of leftover drugs. When a patient visits a physician for acute illness, the patient typically receives a course of drug therapy that should last three to four days. However, the illness may not take the specified time to resolve, and a patient may get well before the course expires. The left over drugs are usually not thrown away, but preserved for future use. In a case where a patient regains the same symptoms, he or she may consider reusing the drugs to prevent the inconvenience of a doctor's visit [18]. Occasionally the preserved medications will work, however, it is not certain that the drug will show the same effect in every individual. Although many diseases present with similar symptoms in the early stages, nevertheless the treatment required may be different. Antimicrobial drugs are one of the highly requested classes of drugs [19].

5. Geographical Barriers:

In a country like India, majority of the country's population lives in rural areas and have little access to proper healthcare facilities and lack exposure to high quality medical care and services. Geographical barriers can play a negative role in the practice of self-medication in underserved populations. Furthermore, these people also lack proper access to educational facilities [20]. Without much access to healthcare professionals and facilities, they prefer taking medication at their own will. The practice of self-medication in underserved individuals is high. For example, if a person in the family becomes ill, then that person, prior to going to a doctor, is first treated with homemade remedies or general prescription medicines. People residing in remote and hilly parts of India also have to rely on self-medication for self care due to unavailability of readily available professional care [3].

6. Feelings of Embarrassment

Sexually transmitted diseases (STDs) can be an embarrassing topic for many people to discuss with their healthcare providers. One plausible reason for this embarrassment is patients' personal, cultural and religious beliefs, which create an environment that is not conducive to open discussions of health problems. Also, patients' inability to accept the truth about STDs, as they may be in denial, can also be a barrier in an open discussion about treatment options. Therefore, use of self-medication can be expected to be higher among people with STDs than others. Antibiotics are a drug of choice and used for prophylactic treatment of STDs. In Philippines, the use of antibiotics is more prevalent among commercial sex workers. They use a variety of antibiotics other than Rifampicin as prophylactic agents against STDs [21].

7. Affordability and Health Insurance

Affordability and health insurance are common pitfalls in patients opting for self-medication. According to a cross-sectional study assessing self-medication use in urban slum households, majority of the respondents practiced self-medication due to various reasons, such as high cost of consultation of private doctors (61.1%), followed by poor quality of care in government hospitals (47.2%), and perception about doctor's advice being unnecessary for common illnesses (41.9%) [22]. Many government hospitals do not provide these people with necessary services, and therefore people are left with little choice but to visit a private doctor. However, doctors' consultation fees are unusually high and unaffordable by the general population, leading them to choose self-medication as an alternative. The study further found that, 77.7% of respondents spend up to 10% of their income on purchasing OTC medicines [22].

According to an estimate prepared by Insurance Regulatory and Development Authority of India, only 17% of total population was covered under any health insurance in 2014 [23]. In a recent ruling in the state of Tripura, governmental doctors were permitted to provide services to patients in private practice. The maximum fee doctors could charge patients was 200 INR per patient, and not more than 100 INR per patient for a subsequent visit, which doubled from 50 INR in 1999 [24]. The average salary of a blue collar person in India is around 4000 Indian Rupees (INR) per month [25]. The World Bank's comprehensive review of India's major government sponsored health insurance schemes states that families meet almost 70% of their health expenses out of their own pockets, placing significant financial burden on the poor, often pushing them deeper into poverty [23]. This calls for a need to improve public health facilities in government settings, so that this income can be utilized for better nutrition and family welfare. Based on these trends, inability to afford doctor's consultation fees, lack of health insurance, and lack of trust in the quality of services provided by healthcare facilities can drive many medium- to low-income populations to self-medicate.

Negative outcomes of self-medications:

From the perspective of patients in these rural areas of India, self-medicating is a fast and cost-effective method to treat most health conditions. However, there are many negative outcomes associated with self-medication. According to studies, one of the common negative outcomes of self-medication is some form of inappropriate use of medication. In other words, medications are either abused or misused [26]. An example of drug misuse is when a patient unknowingly takes a medication in a very large quantity than prescribed. Drug abuse is when the medication is taken for reasons other than medical purposes (i.e. taking high doses of opioids for a sense of euphoria) [26]. Both scenarios often lead to detrimental health consequences for the patients. Another complication related to self-medication may be a potential delay in treating a serious medical condition due to maintaining self-medication instead of seeking medical attention. For instance, people in rural areas of India have a notion that traditional herbal medicines are far more reliable than allopathic medications. Due to this reason, they are reluctant to seek medical help to get appropriate treatment [27]. The risk of drug interactions when self-medicating is another concern not to be taken lightly. The following table summarizes some common drug interactions involving prescription medications and other medications associated with self-medication.

Table 2: Examples of potential interactions: [28][29]

Drugs	Possible Interactions	Possible Outcome
Simvastatin	Itraconazole	Muscle pain, fever/flu symptoms
	Erythromycin and Clarithromycin	Rhabdomyolysis
	Diltiazem and Verapamil	Rhabdomyolysis
Warfarin	Tramadol	Increased bleeding risk
	Amiodarone	Increased bleeding risk
SSRIs	Tricyclic antidepressants	Toxicity

Depending on the circumstance of the patient, the complications with self-medication of a drug will vary. Self-medicating can even lead to mortality if left unnoticed for too long (i.e. concomitant administration of fluorouracil with leucovorin can cause an elderly patient to die of fluorouracil toxicity) [26]. People may also misdiagnose their own physical ailment and self-medicate with incorrect medications due to lack of knowledge and education. This can lead to substantial morbidities as well [30].

Recommendations for minimizing the risks of self-medication:

Self-medication is a significant health dilemma in India due to various reasons. Most of the reasons are associated with human factors such as knowledge deficit of patients, lack of

communication between healthcare providers and patients, and the inability to afford proper healthcare [31]. Increased health education for the public and stricter regulations in limiting the misuse of self-medication drugs are necessary in order to discourage self-medication [32]. Healthcare providers and the government should design educational campaigns to teach patients about medicine safety and appropriate use of medications [33]. Such health education should be implemented in general practitioner consultations, and through media publicity. Patient education should cover knowledge regarding warning signs and symptoms relating to illnesses, when it is unnecessary to take medications, how and when to seek medical help, and when to seek the advice of a community pharmacist [34]. Improved knowledge and comprehension of the effects of self-medication would lead to more rational use of medications.

The pharmacist may serve the role of a communicator in the process of self-medication education. This means that the pharmacist provides adequate objective drug information to patients upon purchase of OTC products/prescription drugs and should initiate follow-up with the patients if necessary. It should become a part of general pharmacy counseling routine to seek information about patient medication history, including any self-medication usage and any presenting signs and concurrent symptoms. This would allow early detection of potential adverse reactions [34]. Studies have shown that better communication between patients and healthcare providers predicts optimal self-management of medications [35].

The high cost of healthcare is one of the major contributing factors for patients not seeking care. The rural populations either do not have health insurance or cannot afford it. In addition, the majority of these populations have little to no access to hospitals and clinics. Patients who struggle with financial burden and/or unable to afford proper healthcare and medications can seek assistance from social workers. Social workers can help them find possible sources of funding to pay for medications [36]. Pharmacists could also educate patients about "Jan Aushadhi Stores" in India, which sell quality generic drugs at affordable prices for the public [37].

Conclusion:

Self -medication is an area of concern in healthcare. Its prevalence in rural and underserved areas is very high. Self-medication can be sometimes favorable, but it has negative aspects too. The major concerns with self-medication are intentional or unintentional drug abuse and misdiagnosis, which can often times prolong ailments. When managed properly, self-medication can indirectly reduce the burden on the healthcare units and thus, allow healthcare professionals to focus on other major healthcare concerns. Finally, the most plausible solution to the variety of issues with self-medication is provision of patient education by pharmacists or organization of educational campaigns about drug actions, interactions, side effects and misuse.

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