

# Self-Medication in the Modern Era: Global Trends, Health Risks, and the Pharmacist's Role in Promoting Safe Medication Practices

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**Abstract:** *Self-medication is a rapidly growing public health phenomenon worldwide, encompassing the use of medicines by individuals to treat self-recognized symptoms or conditions without professional supervision. It includes obtaining and consuming drugs without a physician's diagnosis, prescription, or monitoring. While self-medication can contribute positively to healthcare systems by promoting patient autonomy and reducing unnecessary clinical visits, it also poses significant risks when practiced irresponsibly. The increasing availability of over-the-counter (OTC) drugs, ease of online access, and widespread pharmaceutical advertising have led to the normalization of self-treatment behaviors among the general population.*

*Responsible self-medication, supported by pharmacists and regulatory frameworks, is essential to balance its potential benefits against associated risks. Public education on safe medication practices, stricter regulation of OTC drug sales, and rational drug-use campaigns are critical to ensuring patient safety. In low- and middle-income countries, where access to healthcare is limited, self-medication has become a substitute for formal medical care, making it even more crucial to promote informed decision-making among consumers.*

*Here's a concise and well-structured abstract and conclusion for your review article section on "Prevention of Potential Risks Associated with Self-Medication"*

*The prevention of risks associated with self-medication relies greatly on the active participation of healthcare professionals, particularly physicians and pharmacists. By providing accurate information, appropriate therapeutic advice, and continuous health education, professionals can enhance patient understanding and promote safe medication practices. Pharmacists, being the most accessible health professionals, should take responsibility for educating consumers, identifying potential drug-related problems, and referring patients to physicians when necessary. Ultimately, strengthening patient-professional communication and fostering responsible self-care behaviors are key strategies to ensure the rational and safe use of medicines, thereby improving overall public health outcomes.*

*Overall, self-medication represents a double-edged sword in modern healthcare. When practiced rationally and responsibly, it can enhance public health efficiency. However, without adequate awareness, regulation, and professional guidance, it can lead to serious health complications. This review emphasizes the need for continuous public education, policy reinforcement, and pharmacist involvement to ensure that self-medication remains a safe and beneficial component of self-care.*

**Keywords:** Self-medication, Over-the-counter (OTC) drugs, Public health, Drug safety, Self-care practices Pharmacist role, Antibiotic resistance, Adverse drug reactions, Rational drug use, Healthcare accessibility

## I. INTRODUCTION

The use of medication, whether conventional or modern, for self-treatment is known as selfmedication. Getting and using medications without a physician help for diagnosis, prescription, or treatment monitoring is another definition of



self-medication<sup>[1]</sup>. Self-medication is a hazardous, unethical, and careless practice.” A doctor who treats himself is a fool for a patient, and even bigger fool for a doctor,” according to medical professionals<sup>[2]</sup>.

The availability of drugs combined with expertise can give medical practitioners a false sense of assurance. It has been noted that self-medication is related with the “paradox of familiarity,” in which a person who believes they are indemnified for drug usage yet only has a limited understanding of the risks involved with pharmaceuticals.

However, self-medication based on unreliable medical information about a specific illness or medication may Cause delays in accurate diagnosis or even misdiagnosis due to drug dependence, adverse drug reactions, Emergence of pathogen strains with resistance, and masking of underlying disease signs and symptoms.<sup>[3-5]</sup>

Self-medication involves the use of medicinal products by the patient to treat self-Recognized disorders or symptoms<sup>[6]</sup>. It also includes the selection of a medication for A chronic or recurrent condition by the patient, after an initial diagnosis and prescription By a physician. We may also regard as self-medication the administration of medicinal Products to family members, specially infants, children or the elderly.<sup>[6]</sup>

Self-medicating without a doctor’s supervision can be risky since it increases the risk of harmful drug Interactions and side effects. There aren’t many studies on the patterns of selfmedication and the frequency of Non-medical prescription in India. An increase in the reporting of adverse drug reactions (ADRs) related to Self-medication was noted in one study.<sup>[7]</sup> Previous research has indicated that self-medication with NSAIDs Is primarily common.<sup>[7-9]</sup>

Antibiotic self-medication poses a risk not just to the Community as a whole but also to the person engaging in it.<sup>[10]</sup> The use of antibiotics as self-medication has

Been linked in the literature to a number of food-and water-borne illnesses caused by antibiotic- resistant Enteropathy, hypersensitivity to drugs, Bacteria.<sup>[11]</sup>

Self-medication is part of the larger frame of self care and can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, or treatment.<sup>[12,13]</sup> Self- medication has become quite common in developed<sup>[12-15]</sup> as well as developing countries [16-18].

Self-medication has a positive impact on individuals, and healthcare systems. It allows patients to take respon-sibility and build confidence to manage their own health, thereby promoting self-empowerment.<sup>[13]</sup> Furthermore,from the medical doctor’s perspective unnecessary medi-cal consultations could be avoided through appropriate and effective self- medication.<sup>[19,20]</sup>

On the other hand, instances of inappropriate self-medication have been identified in the literature. This has resulted in misuse of OTC products through overuse, using several drugs concurrently, or using home remedies to treat potentially serious diseases<sup>[21]</sup>, which have resulted in misdiagnosis<sup>[22,23]</sup> or masking of serious medical conditions.<sup>[24]</sup>

### **OTC DRUGS :**

Over-the-counter (OTC) medications are medicines that can be purchased without a prescription to treat minor ailments such as aches, pains, and colds They are available in various categories, including pain relievers, allergy and cold medicines, antacids, and skin treatments, and are safe and effective when used as directed on the label.<sup>[25,26]</sup>

OTC medications are to cure a wide range of ailments and symptoms,Such as pain, colds and coughs, diarrhoea, nausea, and so on. Although over-the-counter(OTC) availability promotes self-care, it has also led to a public impression of safety and a Lack of knowledge about the risks associated with misuse, dependence, and injury.<sup>[27-30]</sup>In Fact,certain over-the-counter medications contain active components that have the potential.

To be abused at higher than advised dosages.<sup>[31]</sup> These medications are also gaining Popularity due to the likelihood that they could be diverted in order to produce centrally acting psychoactive effects.

Table 1: Drugs used for self medication

1) Analgesic Drugs	4) Antiallergic Drugs
2) Antacids	5) Cough and Common cold Drugs
3) Ophthalmics	6) Other



### **Analgesic Drugs :**

The most often prescribed analgesic for children's minor discomfort in the US <sup>[32]</sup>

And abroad Is **paracetamol** (PCM).<sup>[33]</sup> It is, therefore, the OTC preparation for kids that is most commonly Used and sold.<sup>[32,34,35]</sup> It is available everywhere in the world in pharmacies and supermarkets.

The health care System has minimal awareness and control over PCM use because individual purchases of OTC preparations are not registered. PCM was first offered as a moderate antipyretic and Analgesic in the 1950s. When administered in therapeutic dosages, is deemed safe for Individuals in the paediatric population. Frequent use of PCM may cause headaches brought On by medications <sup>[36]</sup>Overdosing may result in liver failure or, in the worst situation, liver Damage.8. Both after a single overdose incident and after taking doses beyond recommended Limits repeatedly, intoxication may occur<sup>[37]</sup> Given how frequently parental dosing errors with PCM occur, this is noteworthy.<sup>[38]</sup>

**Antacids :** Consumers who suffer from acid reflux and heartburn over- thecounter (OTC) antacids as a significant class of pharmaceuticals available for purchase Worldwide.<sup>[39]</sup> Antacids offer symptomatic relief for acid reflux, hyperacidity, heartburn, GER, and upset stomach that are associated with these disorders.<sup>[40]</sup>Antacids work by inhibiting the Aluminium hydroxide gel. , Calcium carbonate(Alka-Seltzer , Tums), Magnesium hydroxide (Milk of Magnesia) enzyme pepsin and neutralizing excess Hydrochloric acid (HCl) in gastric juice.<sup>[41]</sup> The concentration of gastric acid can be reduced By a factor of 100 when an antacid raises the pH of the stomach from 1.5 to 3.5.<sup>[42]</sup> A few Studies found that because some antacids have local rather than systemic effects, they can be Used safely during pregnancy.<sup>[43,44]</sup> The neutralizing and buffering capacity of each antacid determines how effective it is. Manufacturers of antacids frequently reformulate some of their products to enhance their Organoleptic properties and palatability, so improving the overall consumer experience. The Market is thus flooded with antacid products, all of which claim a comparative advantage Over the others, leaving doctors and the general public bewildered by the array of options. Although it's not mentioned on product labels, the acid-neutralizing capacity (ANC), which Can vary greatly, can be used to make an antacid selection.

Another way to choose an Antacid is to think about how well it can buffer acid and keep the stomach pH over 3.5 for an Extended period of time. This narrative review gives background information and context for The current understanding of antacids and their roles in treating heartburn. It also discusses Practical considerations for clinical practice, available techniques to study the ANC and Buffering capacity of antacid formulations, and advantages and disadvantages of the methods Used. This story will also help pharmacists and other medical professionals educate people With heartburn so they can use antacids safely, effectively, and optimally. This is especially Important in the COVID-19 Pandemic era, when people are depending more and more on Self-care.<sup>[45]</sup>

### **1) Ophthalmic :**

Drugs for the eyes or some systemic drugs are often necessary for the majority of ocular illnesses, whether they are acute or chronic. Many patients with eye symptoms treat themselves before or instead of seeking medical attention, even though the doctor is recognized as the official provider for these treatments. Seventy eye redness, watering of the eyes, feeling of a foreign body, and itching of the eyes are among the many medical disorders for which self-medication with ophthalmic medication is practiced.<sup>[46-50]</sup>

Numerous ophthalmological eye drops and prescription pharmaceuticals, such as steroids, antibiotics, non- steroidal anti-inflammatory drugs (NSAIDs), vasoconstrictors, and OTC medications, are accessible without a prescription in Lebanon. Nevertheless, their administration may have negative side effects if there is insufficient medical review and assessment <sup>[51]</sup> It is commonly known that steroids raise intraocular pressure and increase the risk of cataract formation, stromal melt, and infections.<sup>[52,53]</sup>

Examples: Naphazoline/zinc sulphate, carboxymethylcellulose, povidone, glycerine, and mineral oil.

### **Antiallergic Drugs :**

Globally, self-medication is a prevalent habit that is frequently motivated by factors such as cost, accessibility, and the perceived ease of treating specific ailments. Due to their accessibility as over-the-counter (OTC) treatments and their perceived efficacy in treating allergies antiallergic medications are commonly utilized for self-medication. On the other Thhand, overusing the drugs may have negative side effects and conceal underlying medical issues. <sup>[54,55]</sup>



### **Cough and common cold Drugs :**

Even though the common cold has a slight and transient effect, it contributes to a large Burden of disease in the general population.<sup>[56]</sup> The common cold has a higher economic Burden than any other clinical ailment due to its high prevalence and noticeable negative Effects on quality of life. Self-care measures such as using decongestants, Mucolytics/expectorants, antihistamines, and antitussives are commonly used to treat the Common cold.<sup>[57]</sup> OTC symptomatic drugs for colds and coughs cause particular concerns. Due to possible negative effects (e.g., interactions, side effects, and diagnosis delay). The Therapeutic Goods Administration(TGA) has advised against the use of certain cough and Cold medicine ingredients in children under the age of six due to their low efficacy and the Potential for adverse reactions.

These ingredients should only be used under prescription.<sup>[58]</sup> In an older cohort, OTC drug addiction was more frequently associated with cough treatment's (especially those containing Dextromethorphan) and medications containing codeine.<sup>[59]</sup> Despite the hazards, consumers still appear to lack adequate knowledge regarding The safe, effective, and appropriate use of over-the-counter medications for respiratory Problems.<sup>[60,61]</sup> While prior studies have concentrated on attitudes on over-the-counter Medications for cough and cold symptoms, gaps in consumers' perceived knowledge and Concerns are typically unidentified.<sup>[62,63]</sup>

### **Trend of "Rx-to-Over-the-Counter Switch" :**

The transfer of prescription("Rx") medicines to non-prescription Or OTC status is known as the "Rx-to-OTCswitch". Many new Medicines are first introduced as prescription medicines. After A sufficient time has passed in the use of the medicine by many Patients and large-scale experience and scientific information Has been gathered, for suitable conditions a manufacturer may Elect to submit an application to the appropriate authority for The medicine to be given OTC status.<sup>[64]</sup>

Now-a-days health care services getting costlier and in developing countries health care facilities are not available. Hence, that time self-medication becomes an obvious choice of healthcare service.<sup>[65,66]</sup> Furthermore, it has been noted that purchase of drugs and many drugs that can only be purchased with prescription in developed countries are OTC in developing countries. In addition, lax medical regulation has resulted in the proliferation of counter free drugs that are in high demand for the treatment of highly prevalent diseases.<sup>[65,67]</sup>

### **Why do People Use Self-medication?**

Modern consumers (patients) wish to take a greater role in the Maintenance of their own health and are often competent to Manage (uncomplicated) chronic and recurrent illnesses (not Merely short-term symptoms) after proper medical diagnosis And with only occasional professional advice, e.g. use of Histamine H2-receptor blocker, topical corticosteroid, Antifungal and oral contraceptive.

They are understandably Unwilling to submit to the inconvenience of visiting a doctor For what they rightly feel they can manage for themselves, Given adequate information.<sup>[68]</sup>

Self-medication is very common and a number of reasons could Be enumerated for it.<sup>[69]</sup> Urge of self-care, feeling of sympathy Toward family members in sickness, lack of time, lack of health Services, financial constraint, ignorance, misbelieves, extensive Advertisement and availability of drugs in other than drug Shops are responsible for growing trend of self-medication.<sup>[70]</sup>

### **Factors influencing :**

Self-medication is influenced by many factors such as Education, family, society, law, availability of drugs and Exposure to advertisements.<sup>[65,71,72]</sup> Table 1 shows list of drugs Used for self-medication.<sup>[73,74]</sup>

### **Potential benefits :**

Individual level

An active role in his or her own health care



Self-reliance in preventing or relieving minor symptoms Or conditions  
Education opportunities on specific health issues (i.e. stop Smoking aids and products to treat heartburn)  
Convenience  
Economy, particularly since medical consultations will be Reduced or avoided.<sup>[75]</sup> At community level  
Good self-medication can also provide benefits such as:  
areas.<sup>[75]</sup>  
Policy.

**Potential risks :**

Individual level  
Incorrect self-diagnosis  
Failure to seek appropriate medical advice promptly  
Incorrect choice of therapy  
Failure to recognize special pharmacological risks  
Rare but severe adverse effects  
Failure to recognize or self-diagnosis contraindications, Interactions, warnings and precautions  
Failure to recognize that the same active substance is Already being taken under a different name  
Failure to report current self-medication to the Prescribing physician (double medication/harmful Interaction)  
Failure to recognize or report adverse drug reactions  
Incorrect route of administration

Role of health profession Health professionals are one who has potential role in preventing Risks of self-medication. Because he is the one who work on Three main therapeutic aspects of professionalism in his daily Practice: Information, therapeutic advice and education.<sup>[76]</sup> Information Whenever health professionals are prescribing drugs, he Should give proper instructions and explain for what it Is prescribed so that it will be helpful for the patient to Understand and making his own decisions. Given information Should be at patient's comprehension level so that it will be Helpful for them to understand its management.<sup>[76]</sup>

Therapeutic advice Lack of therapeutic compliance is a serious problem in both Acute and chronic treatments and reflects a poorly-understood Or incomplete description of the treatment aims. If patients Are not well-informed they are unlikely to use medication Correctly. However, if the directions for use and the Limitations of a given drug are explained-for example, dose, Frequency of dose, treatment course, how to take it, etc., then Patients have a set of guidelines which will help them to use The drug correctly, both now and in the future. Inappropriate And erratic self-medication, along with lack of compliance, Will only be reduced if patients are informed and understand Clearly why certain advice has been given.<sup>[76]</sup> Education Inappropriate self-medication is the result of the medical Model from which people have learnt. Proper health education Should be given to the patients. By regularly adopting an Educational attitude we can have an effect on large sectors Of the population, on people who, in turn, may directly Influence their friends and family. This aspect is of particular Importance with respect to the self-medication of children by Their parents or takes cares.<sup>[76]</sup>

**Role of pharmacist :**

He/She is one of the key role players in educating his customers. About the proper use of medicines, which are intended for Self-medication. For that, necessary steps have to taken in his training and practice.<sup>[77]</sup>

Pharmacists play a valuable role in identifying, solving and preventing drug-related problems for the purpose of achieving Optimal patient outcomes and quality of life. Ambulatory-based pharmacists have the opportunity and responsibility to foster safe, appropriate, effective, and economical use of all medications, especially those therapies patients are self-selecting.

Pharmacists should guide their customers to consult the physician before taking any medication by self.[78,79,80]





## II. CONCLUSION

Self-medication is a widespread and complex public health issue that carries both advantages and significant risks. While it reflects an individual's initiative and responsibility toward managing minor health conditions, its misuse can have serious consequences. The easy accessibility of over-the-counter (OTC) medicines, coupled with limited healthcare access, financial constraints, and extensive drug advertising, has contributed to the growing trend of self-medication, particularly in developing countries. Although responsible self-medication can reduce the burden on healthcare systems, save time and money, and encourage self-reliance, it must be practiced with adequate knowledge and caution.

The prevention of risks associated with self-medication relies greatly on the active participation of healthcare professionals, particularly physicians and pharmacists. By providing accurate information, appropriate therapeutic advice, and continuous health education, professionals can enhance patient understanding and promote safe medication practices. Pharmacists, being the most accessible health professionals, should take responsibility for educating consumers, identifying potential drug-related problems, and referring patients to physicians when necessary. Ultimately, strengthening patient-professional communication and fostering responsible self-care behaviors are key strategies to ensure the rational and safe use of medicines, thereby improving overall public health outcomes.

In conclusion, self-medication is a double-edged practice-when carried out responsibly, it empowers individuals and supports healthcare sustainability, but when misused, it poses serious health risks. Therefore, fostering public awareness, ensuring pharmacist involvement, and enforcing robust healthcare policies are essential to maximize its benefits while minimizing its dangers.

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