

## Misuse of Prescription and the Over the Counter Medicines, A Literature Review.

Fathima Thahsin T<sup>[1]</sup>, Vimal K R<sup>[1]</sup>, Nethaji Ramalingam<sup>[1]</sup>,  
Babu Ganeshan<sup>[2]</sup>.

<sup>[1]</sup>Department Of Pharmaceutics, Devaki Amma Memorial College Of Pharmacy , Chelembra,  
Malappuram,Kerala-673436,India.

<sup>[2]</sup>Department Of Pharmaceutical Chemistry, Devaki Amma Memorial College Of Pharmacy, Chelembra,  
Malappuram, Kerala-673436,India.

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### ABSTRACT.

Self-care and self-medication practices are essential components of any health care systems. The use of over-the-counter (OTC) medications is a part of the self medication process. The popularity of OTC medication use among patients may increase the abuse potential of OTC medications.

The sale of over-the-counter (OTC) medicines from pharmacies can help individuals self-manage symptoms. However, some OTC medicines may be abused, with addiction and harms being increasingly recognised. This review describes the current knowledge and understanding of OTC drugs.

### I. INTRODUCTION.

OTC medicine abuse was identified in many countries and although implicated products varied, five key groups emerged: codeine-based (especially compound analgesic) medicines, cough products (particularly dextromethorphan), sedative antihistamines, decongestants and laxatives. No clear patterns relating to those affected or their experiences were identified and they may represent a hard-to-reach group, which coupled with heterogeneous data, makes estimating the scale of abuse problematic. Associated harms included direct physiological or psychological harm (e.g. opiate addiction), harm from another ingredient (e.g. ibuprofen-related gastric bleeding) and associated social and economic problems. Strategies and interventions included limiting supplies, raising public and professional awareness and using existing services and Internet support groups, although associated evaluations were lacking. Terminological variations were identified.

Since generally being considered safe, over the-counter (OTC) medicines are available without a

prescription and can be purchased directly from related pharmacies/stores .

OTC medicines are meant to treat a variety of illnesses and symptoms, including pain, coughs and colds, diarrhoea, nausea, etc. OTC availability, while encouraging self-care, has contributed to a public perception of safety and a lack of awareness relating to their potential for misuse, dependence, and harm. Indeed, some OTC medicines have active ingredients possessing a misusing potential at higher-than recommended dosages and are becoming increasingly popular for the possibility of their diversion in order to reach central psychoactive effects. Currently, there is minimal information about the prevalence of OTC misuse, abuse, and dependence .Indeed, current lack of knowledge may partly be due to poor sales' monitoring because of OTCs' favorable legal status. Most implicated drugs include certain cough suppressants, sleep aids, and antihistamines, which can at times be ingested in combination with remaining recreational psychotropics and/or prescription drugs and/or alcohol .Overall, the misuse of OTC drugs is considered as more socially acceptable, less stigmatizing, and safer than the intake of illicit substances, also due to their likely lack of detection in standard drug screens . OTC drugs' intake may involve snorting or injecting the crushed tablets' powder to amplify the effects of a drug or ingesting these molecules for a purpose different from the therapeutic one. This may be the case for dextromethorphan (DXM) and codeine-based cough mixtures, being possibly misused at high dosages for recreational or euphoric effects; conversely, loperamide is at times being ingested for self medicating withdrawal symptoms .OTC misuse has also been associated with notable drug interactions. Most implicated drugs include certain

cough suppressants, sleep aids, and antihistamines, which can at times be ingested in combination with remaining recreational psychotropics and/or prescription drugs and/or alcohol. Overall, the misuse of OTC drugs is considered as more socially acceptable, less stigmatizing, and safer than the intake of illicit substances, also due to their likely lack of detection in standard drug screens. OTC drugs' intake may involve snorting or injecting the crushed tablets' powder to amplify the effects of a drug or ingesting these molecules for a purpose different from the therapeutic one. This may be the case for dextromethorphan (DXM) and codeine-based cough mixtures, being possibly misused at high dosages for recreational or euphoric effects; conversely, loperamide is at times being ingested for self medicating withdrawal symptoms. OTC misuse has also been associated with notable drug interactions, physical and mental health effects, individual variation in responses, for the users, their family, and the wider community.<sup>[1]</sup>

**AIM OF STUDY.**

Thus, the current review aimed at examining the current literature on the misuse of OTC drugs, focusing on the following OTCs: among antihistamines, diphenhydramine (DPH), promethazine, chlorpheniramine, and dimenhydrinate (DH); DXM- and codeine-based cough medicines; and the nasal decongestant pseudoephedrine; illustrating patterns of OTCs' misuse, psychopathological effects, and harms associated; and better understanding the psychotropic molecular mechanisms underlying their recreational use.

**COMMONLY ABUSED PRESCRIPTION AND OTC DRUGS.<sup>[2]</sup>**

**1) BARBITURATES:-**

These are sedatives like Phenobarbital, pentobarbital (Nembutal), and secobarbital (Seconal). They help with anxiety, sleep problems, and some seizures. But if taken more than prescribed, addiction can take place. High doses can cause trouble breathing, especially if you use them when you drink alcohol.



**2) BENZODIAZEPINES.**

Alprazolam (Xanax), clonazepam (Klonopin) and diazepam (Valium) are the examples of benzodiazepines—another type of sedative that can help with anxiety, panic attacks, and sleep

problems. They work well and are safer than barbiturates. But overused, and even used as prescribed, they can lead to physical dependence and addiction.



**3)SLEEP MEDICINES.**

If any one have trouble sleeping ,drugs like zolpidem(ambien),eszopiclone(lunesta)and

zaleplon(sonata)can help them get the rest they need.But if used longer than prescribed,dependence occurs.



**4)CODEINE AND MORPHINE.**

Some of the most commonly abused prescription meds are pain killers,specifically opioids.These

drugs dull pain but in large doses can cause euphoric high,and dangerous side effects.



**5) OXYCONTIN, PERCOCET.**

Another opioid painkiller is oxycodone. Its in drugs like Oxycotin, Percocet, Percodan and

Roxicodone. People who abuse oxycodone sometimes crush it and snort it or inject it greatly raising the risk of overdose.



**OTC MEDICATION ABUSE.**

**OTC medications with most potential for abuse:-**

Multiple OTC medications have abuse potential. Commonly abused medications include antihistamines, sleep aids, caffeine, ephedrine, pseudoephedrine, antitussives and expectorants, dextromethorphan, laxatives, anabolic steroids, and sildenafil." "Laxatives are abused for weight loss and high antihistamines doses are used for euphoria. From the studies done across the world for OTC medication abuse, opiate-based combination products and cough/ cold products containing dextromethorphan, sleep aids, antihistamines, analgesic, hypnotics, and laxatives have been

highlighted as having abuse potential. Cough medicines and painkillers are most abused medications. OTC codeine or other opiate-containing products and OTC cough and cold medications are the most commonly implicated medications for abuse. Codeine is not available as OTC in the US. However, it is a primary medicine with abuse potential in other countries. Numerous studies have recorded OTC codeine analgesics as the most commonly abused medication. Table 1 highlights the OTC medications with high abuse potential.

One of the probable reasons for OTC abuse is increased access to medications. This is because medications for common illnesses are made accessible by prescription (Rx) to-OTC switch. Most switches are driven by firm's patent expiration. However, in case of prescription antihistamines like Claritin, Zyrtec, and Allegra, Blue Cross and their parent company petitioned the switch to the US Food and Drug Administration (FDA). Providing patients with autonomy, diagnosis of the condition on the patient's judgment and the absence of a physician may lead to inaccurate self-diagnosis. For example, the availability of treatment for dyspepsia masks the presence of a severe gastrointestinal disease, which may not be diagnosed by patients. Lack of pharmacist vigilance may lead to long-term in

appropriate use of OTC medications and hamper the health of patients.

Switching of drugs increases patient autonomy while encouraging them to make their health care decisions. About \$12.9 billion savings were recorded for the switch of cold/allergy, analgesics, and dermal products." However, this increasing number of medications being switched to OTC status increased the spectrum of medications available for abuse." For example, the switch of acetaminophen from prescription to OTC has led to increased cases of severe liver hepatotoxicity. If abused, acetaminophen leads to withdrawal symptoms, in addition to suicidal thoughts and liver failure.<sup>[3]</sup>

CLASS/THERAPEUTIC GROUP.	EXAMPLES.
Antihistamines	Diphenhydramine
Cough medications	Containing dextromethorphan
Codeine containing products.	Analgesics(codeine with ibuprofen or paracetamol.)
Analgesics	Aspirin and acetaminophen.
Hypnotics.	Sominex,Nytol.
Laxatives	Sodium phosphate laxative and those containing bisacodyl.
Decongestants.	Pseudophedrine.

### HARMS RELATED TO OTC MEDICINE ABUSE.

A range of problems and harms associated with OTC medicine abuse were identified and these comprised three broad categories .

First, there were direct harms related to the pharmacological or psychological effects of the drug of abuse or misuse. Second, there were physiological harms related to the adverse effects of another active ingredient in a compound formulation. Both these types of harm led to concerns about overdoses and presentation at emergency services. Third, there were those harms related to other consequences, such as progression to abuse other substances, economic costs and effects on personal and social life. Direct harms included addiction and dependence to an opiate such as codeine (Mattoo et al., 1997; Orriols et al., 2009; Nielsen et al., 2010). Other direct problems included convulsions and acidosis due to codeine and antihistamine.

(diphenhydramine) containing antitussive medicine (Murao et al., 2008) and tachycardia, hypertension and lethargy due to abuse of Coricidin cough and cold tablets (dextromethorphan and chlorphenamine) (Banerji & Anderson, 2001). Lessinger and Feinberg (2008) produced a comprehensive list of physical findings of nonmedical use of abused OTC products, noting agitation with nicotine gum, caffeine and ephedra, priapism with ephedrine and pseudoephedrine, psychiatric effects with dextromethorphan, euphoric psychosis with Coricidin and chlorphenamine and gastrointestinal disturbances with laxatives. Also within this category of direct harms were concerns raised about chronic rebound headache associated with repeated use of analgesics.<sup>[4]</sup>

### ROLE OF PHARMACISTS IN OTC MEDICATIONS.

Patients have easy and free access toward seeking advice from a pharmacist. Many issues



faced by a patient can be easily solved by pharmacists, including product selection, OTC brand name confusion, appropriate product use, and when to take medications. Thus, pharmacists exercise a strong influence on OTC medication purchase and product selection.

Many patients find product selection confusing due to marketing strategies by manufacturers. A common marketing technique by pharmaceutical manufacturers is line extension. A large percent of revenue is spent on OTC medication advertisements and line extensions. Once a manufacturer has an established brand name, other products are sold under the extension of the same brand. For example, the primary brand Tylenol has many line extensions including Tylenol PM® and Tylenol Cold and Cough. This often leads to confusion among the minds of patients. Many times these line extensions have multiple ingredients causing more confusion. A patient-pharmacist interaction would help patients in their decision-making process during these instances.

OTC advertisements are often the driving factor in OTC medication selection by the patients. If the advertisements are misleading, a patient may be misinformed. The advertisements focus upon the beneficial effects of the medication with bare information on the contraindications and safety concerns. With this regard a pharmacist can also provide insight into all aspects of the drug, as well as information on the safe use of OTC medications.<sup>[5]</sup>

## II. LIMITATIONS.

One of the difficulties regarding the literature on otc drug misuse is both its heterogeneity and the issues in identifying misusing practices; interpretation was easier for both those cases reported by healthcare professionals, whose intervention was needed, National/Regional Poison Data System information (100, 101), etc. According to UNODC, the misuse of medicines is defined as "the problematic consumption outside of acceptable medical practice or medical guidelines, when self-medicating at higher doses and for longer than is advisable, for intoxicating purposes and when risks and adverse consequences outweigh the benefit". However, levels of terminology variability and inconsistency to describe the OTC phenomenon were identified as well; this use was referred to as non-medical use, problem use, harmful use, recreational use, self-medication, or inappropriate use, which calls into question whether there is

aconsensus on the negative consequences (problem, harm) of OTC use.<sup>[6]</sup>

## III. CONCLUSION.

This review of the literature relating to OTC medicine abuse has revealed that there is a recognised problem internationally involving a range of medicine and potential harms. Methodological concerns have emerged in relation to the use of proxy, self-report and non-OTC specific data and the relative lack of qualitative research involving experiences of OTC medicine abuse. These represent urgent areas where research is needed; to explore the extent of the problem and to provide insights into those affected, coupled with providing clarification of the type of problem being investigated. Such research is needed to inform policy, regulation and the preparedness of a range of health care professionals to avoid harm to those who purchase OTC medicines that may be liable to abuse.

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