

# A Review on the Attitude and Practice on Self Medication, Storage and Disposal of Drugs in a Community

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## ABSTRACT

Self-medication is widely performed in developed and developing countries. In simple words, it is taking medications without consulting a doctor. It is an easy way of diagnosis but inappropriate practices may lead to false diagnosis, adverse drug reactions and drug-drug interactions. Household storage of medicines is for emergency uses, acute or chronic illness. Inappropriate storage and use of medicines at home may have an influence on public health, environment and it also increases the risk of self medication. Drug stability will be affected with improper storage of drug at home. Places like kitchen and bathroom are not suitable for keeping medicines. Drug storage at homes promotes accidental injury and wastage of medicines. Drug disposal is the discarding of drugs. The leftover medicines are not properly disposed by the households. The improper disposal of unused and expired medicines leads to a significant risk to health and environment. Proper methods of disposal are mandatory for the safety of public health and environment. The ideal method of disposal should ensure the minimal risk for diversion, easy to implement, should not harm to the environment.

**Keywords:** Self-medication, Storage, Disposal

## INTRODUCTION

The World Health Organization (WHO) has defined self-medication as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms. Self-medication is affected by

many elements, such as domestic legislation and handiness of medicines; bulletins by pharmaceutical companies and local societal and cultural norms. Most Familiar reasons for favoring self-medication were acquaintance with precursory treatment, a friend's Counsel, self-resolution, and reading information in books or on the internet also contribute to this. The respondents practicing self-medication got information about drugs mostly through local pharmacists and previous prescription of doctor for similar complaints followed by family members and friends. The important origins of details for self-medication were previous prescription of doctor, friends and neighbors, pharmacist, friends, books and advertisement leaflets. Antacids were commonly taken as self medication. Increased self medication use for treatment of gastrointestinal symptoms is also seen. Cough syrups, antihistaminic, decongestants were used as self medication by study population. Antihypertensive, anti-diabetic, anti-thyroid drugs were also used as self medication. [1] Other than these, painkillers, cold medicine, vitamins, antibiotics also contribute to the drugs that are usually used for self medication.

The proper storage of medicines at homes is necessary for the stability of the drug. The factors that lead to medication storage include: woman as gender, elderly age group, presence of health professional in the family, informants with high

education and informants with higher monthly income [2,3] were related with enlarged home depository of medicines. The drugs mostly stored are antibiotics and analgesics [4, 5] mainly for future use. [6] Medicines are stored at home for many reasons. It can be for emergency purposes or for treatment of various illnesses. [2] Symptoms like fever, body weakness, cough were found to be common in the houses that stored medicines. [7] The disease conditions for which the drugs were most commonly stored were headaches, hypertension and then diabetes. [3] Most frequent disease for which the antibiotics were used was for diarrhea, analgesics for backache. [8] A good number of households did not store medication in a place away from the reach of children or people such as with dementia. [8, 9]

Drug disposal is the discarding of drugs. The leftover medicines are not properly disposed by the households. The inappropriate discarding of unused and run-out medicines leads to a significant risk to health and environment. [10] The disposal methods adopted by the general public are throwing of medicines in the dustbins, burning and flushing into the toilet or sink.

### **SELF MEDICATION**

The World Health Organization (WHO) has defined self-medication as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms. The percentage of population using self medication might change with locality and region.

### **REASONS FOR SELF MEDICATION**

Self medication is usually practiced nowadays and many reasons can contribute to it. Self-medication is influenced by many factors, such as high consultation fees of doctors, quick relief and time saving, accessibility of medicines; advertisements by pharmaceutical companies; individual's education level, income and number of family members; and cultural norms are responsible for growing trend of self

medication. Fast recovery, sympathy feelings for family members in sickness, lack of information, lack of trust in physician, poverty, ignorance, superstitious beliefs, advertisement and availability of drugs in shops are also reasons for that. [11]

Common reasons that favour self-medication were experience of preceding treatment, a friend's suggestion, self-decision, and information in books or on the internet also enumerate to this. [12]

Other reasons in which people use self medication is females who has no family support and hence choose self medication, ease of access, self care in preventing or reliving minor symptoms or condition, a thought that the ailment was minor and economical factors, taking an active role in his/her own health condition, vast availability of medicine, wider choices in treatment. [13]

### **DRUG INFORMATION SOURCES ON SELF MEDICATION**

The respondents practicing self-medication got information about drugs mostly through local pharmacists and previous prescription of doctor followed by family members and friends for similar ailments. Some reported their own previous experiences as an information source for self-medication. Internet as a source was also reported. [14]

The important information source for self-medication was previous prescription of doctor, friends, neighbours and pharmacist. Friends, books, advertisement leaflets also contribute to it.

### **SOURCES OF SELF MEDICATION**

The most common purchasing source was found to be by multiple methods which include, from chemists by telling the symptoms, old prescriptions, drugs stored at home. [15]

Variation in drug purchasing method between low and high level of education have been seen. People with no or low qualification had received drugs from pharmacist, whereas people with high

qualification had used previous prescription for the same. [16]

### **CONDITIONS FOR SELF MEDICATION**

Most common condition for which for self-medication is taken is common cold and cough. Fever, abdominal pain, and headache were the other conditions for self-medication. [17]

Other conditions for which self medication is taken are body pain, gastrointestinal symptoms such as acidity, diarrhoea and constipation. [4]

### **DRUGS USED FOR SELF MEDICATION**

Antacids were usually taken as self medication. Increased self medication use for treatment of gastrointestinal symptoms is also seen. Cough syrups, antihistaminic, decongestants were used as self medication by study population. Antihypertensive, anti-diabetic, anti-thyroid drugs were also used as self medication. [1]

Painkillers, medicine for cold, vitamins, and antibiotics also contribute to the drugs that are usually used for self medication. [18]

### **CONCERNS OF SELF MEDICATION**

Problems regarding self-medication include sharing prescription medicines with family members, using leftover medication at home from previous prescriptions or disrespecting the medical prescription by prolonging or interrupting the dose, dosage and the administration period as prescribed by the physician.

Antimicrobial resistance is another important problem worldwide, particularly in developing countries where antibiotics are often available without a prescription. Other concerns related to self-medication are wastage of resources and serious health hazards such as drug dependence, adverse reaction, and prolonged suffering. [19]

### **CONSEQUENCES OF SELF-MEDICATION**

Women reported relief of disease symptoms, disease treatment, disease prevention, and worsening of symptoms, respectively. Moreover, self-medication did not have any outcome among many of the subjects. Some women tried to manipulate the type and dosage of the drug after relief of the symptoms, and more than half of them announced the lack of drug effectiveness and worsening of the disease symptoms as the reasons for changing the type and dosage of the drug. Furthermore, women referred to the medication guide to determine the drug dose during self-medication. [20]

### **STORAGE FACTORS RELATED TO STORAGE OF MEDICINES:**

The factors that lead to medication storage include: woman as gender, elderly age group, and presence of health professional in the family, informants with higher education and informants with higher monthly income. [2, 3] were associated with increased home storage of medicines. More than half of the households that stored medications had members that suffered from chronic illnesses like diabetes and hypertension. [2, 3] But in a certain study, the educational status of the head of the house was not a factor for the storage of drugs. [21]

The proportion of drugs stored in urban households was more than in rural households. More dependence on traditional medicines and less decreased coverage of modern medicine maybe the reasons for less storage of drugs in rural areas.

Since the disease burden is increasing in the developing countries, the tendency to store medications in households is more. Also self medication is acceptable to a larger extent among the community through which quick relief and treatment is possible. [5, 7] All these factors influence the household medication storage. [7]

In places like Uganda inadequate medical facilities and medicine stocks lead to the people storing medicines at home for cases like emergencies. People who had to

travel half hour to one hour to get medicines were more likely to store medicines at home. [7]

### **THE DRUGS COMMONLY STORED:**

The drugs mostly stored are antibiotics and analgesics [4,5] mainly for future use. [6]

Antibiotics alone among other drugs are the most stored medicines in houses. [6, 22, 23] This indicates non-adherence to the anti-infective course. [22] This should be treated with greater caution and public awareness and information must be provided to avoid antibiotic resistance, promote careful use and to avoid the use of non-prescribed antibiotics. [7] Leftover medicines also increase the risk of it being abused, shared or used inappropriately by others. [22] Whereas in others, analgesics were the most commonly found drugs in households [9,24] followed by antibiotics. But over use and inappropriate use of these drugs can also lead to severe organ damage such as that of liver and kidneys.

OTC drugs were the most common type of drugs stored in houses. Analgesic-antipyretic [8] is stocked at houses as it provides symptomatic relief for various pain and fever. Other OTC drugs like cough and cold preparations, antacids [8, 22] were also being widely stored in houses. But the storage of prescription medicines like NSAIDs [9, 21, 22] raise concern since the practice of self-medication can be harmful with such drugs. [22]

In another study, antihypertensive drugs were found to be the most common. The majority of medicines found were anti diabetic and anti hypertensive drugs which were used for the ongoing treatment. [2] Most of the anti-diabetic and antihypertensive drugs were left unused due to change in treatment. [5]

### **PURPOSE AND REASONS FOR STORAGE OF DRUGS:**

Medicines are stored at home for many reasons. It can be for emergency purposes or for treatment of various illnesses. [2] Symptoms like fever, body

weakness and cough were found to be common in the houses that stored medicines. [7] The disease conditions for which the drugs were most commonly stored were headaches, hypertension and then diabetes. Most frequent disease for which the antibiotics were unused was for diarrhoea, analgesics for backache. [8]

Due to the large number of people using traditional medicines in Ethiopia, storage of drugs in households is less here compared to other places.

Most of the people stored medicines for ongoing treatments. [7] Among the rest of them, most stored drugs which were leftover [5,7] and the other few stored drugs for future use [1,8,10,11] which indicates the regular conditions of decreased drug stocks or lack of immediate medical facilities in developing countries like Uganda. [7] But in one study, the majority of drugs that were stored were for future use. The remaining was stored equally as drugs used in ongoing treatments and as left-over medicines. [22]

Leftover drugs are kept at houses due to decreased medication adherence, over prescribing by physicians and also storing for future use [4, 24] and use them either for future use or for sharing the medicine with others which experience similar symptoms. [7] Unnecessary prescriptions and refills of prescriptions especially in case of analgesic preparations and the writing of 'use-as-needed' prescriptions must be avoided to decrease the unnecessary storage of medicines. [24] One-third of the people reused the antibiotics that were earlier prescribed by the physician. [4]

The reasons for the storage of various drugs is recovery from the illness, death of the patient for whom the drug was prescribed, expiry of the drugs and change in the treatment regimen. [3] Incomplete knowledge on disposal of medicines and also on the expiry of drugs can be the reasons for storage of expired medicines. Non adherence may also be a reason for the storage of left over medicines at home. [23]

## CONDITION OF STORAGE OF DRUGS:

A checklist was prepared to assess the safe storage of the drugs. They included the 5 points [8]

1. If the drug was past the expiry date
2. Storage within the reach of children
3. If the prescriptions were available
4. If the both the currently used and unused medicines were stored together.
5. If the labels were visible

None of the households stored drugs appropriately. [5,8] More than half of the households had four or more than four unsafe practices more than half of the houses stored currently used drugs with unused drugs. Almost half of the households had medicines that were expired. [8]

When the medicines are not stored in their primary packages or original containers, the people may not be able to benefit from the information on the packages or leaflets and may lead to improper use. Such unlabeled drugs were found in almost half of the households. [8] But contrarily also in some studies, the primary package of the medications was in good condition. [9]

According to the WHO, a medicine is well labelled or adequately labelled if it retains the patient name, drug name, dose, frequency and duration of treatment. [2] Almost all retained the drug labels in good condition. [2, 7]

Of all the medicines, the ones of which the indication and use is known were less likely to be expired than the OTC preparations and the ones of which the indication was unknown. [9] The number of expired medicines was found to be more both in rural as well as urban households. [25] And a good number of drugs were found to be expired. [9] Almost half of the households stored unused medication at home until expiry. [23] But in some studies, a very low percentage of drugs past expiry date were found. [3, 5] The reason maybe that the median duration for which the drugs were stored was 15 days. [3]

A good number of households did not store medication in a place away from the reach

of children or people such as with dementia. [9, 21]

## PLACES OF STORAGE OF DRUGS:

Drawer and cupboard were the storage places that are most commonly used for storage of medications. This could also be seen in a study where the drugs were most commonly stored in bags/containers then followed by cabinets/cupboards. In another study, a vast majority of the households stored drugs in drawers in living rooms and also in bedrooms. [3]

In another study it was found that almost all the households had a single storage place and it was found to be dry and cool. [6]

But contrary to that, in a study, people stored medicines on dining tables, top of refrigerator, first aid boxes, in the car, in bags, kitchen and even the bathrooms. Drugs stored in some of such places could easily undergo degradation. This can be because of the lack of provision of information on the proper drug storage and this was also indicated by more than half of the households. [23] This can be seen in other studies also where, the place drugs were commonly stored are refrigerator or the kitchen cupboard. Remaining drugs were stored in the bedroom. [1, 18] and most of the drugs were stored in places like kitchen and bathroom where the storage of drugs is not advisable. Only a small minority of households stored drugs appropriately. [3, 21]

## DISPOSAL:

Drug disposal is the throw away of drugs. Individuals often throw out unexploited drugs which remain after the end of medical treatment. The medicines are available for the patients through the prescriptions, pharmacies, over the counter etc. Most of the patients fail to consume the dispensed medication correctly. The patients will discontinue the drug after the symptomatic relief and they do not complete the course of treatment. There by the medicines are often left in the household. [8]

The leftover medicines are not properly disposed by the households. The

improper disposal of unused and expired medicines leads to a significant risk to health and environment. [25, 27] Many individuals in the various households are neither aware about the consequences of improper disposal nor safe drug disposal practices. [10] The storing of unused and expired drugs will lead to accidental poisoning, drug abuse and drug misuse.

### REASONS FOR NOT DISPOSALS OF DRUGS

The leftover medicines are stored by the households for the treatment of recurrent of illness. Most of the people are keeping the leftover medicines for the reuse in the future. [11] Some of the medicines kept for the reuse are no longer used and become a medical waste. Many of the persons don't know how to safely dispose a medicine. [10]

### COMMON METHOD OF DISPOSAL PRACTICES

The disposal methods adopted by the general public are throwing of medicines in the dustbins, burning and flushing into the toilet or sink.

The most common method of disposal of drugs seen in India is throwing into the garbage followed by burning, flushing into toilets and very rarely returning to the medical shops. [28]

In Ghana common practice of disposal is by throwing into the dustbin followed by flushing into the toilets or sinks. [10] The most common method of disposal followed in Nigeria is throwing into the trashcan, followed by flushing, burning etc

A study conducted in Malaysia reveals that the most common method of disposal of medicines used are throwing into the dustbin. And the second common method is returning the unused medication to the pharmacies followed by giving to friends. The very rarest method is flushing into the sink. [29]

### CONCLUSION

The current methods of self medication, storage and disposal practices of medicines are not optimal. Self medication practices should bring down to minimize the risks. Awareness on the effect of improper storage of drugs at home should be given to the people. More studies should be conducted on why people refuse to do the proper storage and disposal methods. An authorized collective organization should be established for the collection of unused medications at homes. Government should take the initiative to implement the methods for proper storage and disposal of medicines. [30]

### REFERENCES

1. Keche Y, Yegnanarayan R, Bhojar S, Agrawal R, Chavan R, Mahendrakar P. Self medication pattern in rural areas in Pune, India. *Int J Med Public Heal*. 2012;2:7.
2. Pandey SD, Chaudari VL. Cross sectional study of factors associated with home storage of medicines. *Journal of chemical and pharmaceutical research*. 2016; 8(8): 1114-1120
3. Teni FS, Surur AS, Belay A, Wondimsigegn D, Gelayee DA, Shewamene Z, et al. A household survey of medicine storage practices in Gondar town, northwestern Ethiopia. *BMC Public health*. 2017; 17(1): 238.
4. Sandeep A et al. Self-Medication: Knowledge and Practice among Urban and Rural Population. *International Journal of Pharmaceutical & Biological Archives*. 2013;4(3):488– 492.
5. Jassim AM. In-home Drug Storage and Self-medication with Antimicrobial Drugs in Basrah, Iraq. *Oman Med J*. 2010; 25:79-87.
6. TsiligianniTsiligianni IG, Delgatty C, Alegakis A, Lionis C. A household survey on the extent of home medication storage. A cross-sectional study from rural Crete, Greece. *European Journal of general practice*. 2012; 18(1): 3-8.
7. OcanOcan M, Bbosa GS, Waako P, Ogwal-Okeng J, Obua C. Factors predicting home storage of medicines in

- Northern Uganda. BMC Public Health. 2014; 14:650
8. Maharana SP, Paul B, Aparjita D, Garg S. Storage, reuse and disposal of unused medications: A cross-sectional study among rural households of Singur, West Bengal. *Int J Med Sci Public Health*. 2017; 6(7): 1185-1189.
  9. DeDe Bolle L, Mehuys E, Adriaens E, Remon J-P, Van Bortel L, Christiaens T. Home medication cabinets and self-medication: A source of potential health threats?. *Ann Pharmacother*. 2008; 42: 572-579.
  10. Osei-Djarbeng SN, Larbi GO, Abdul-Rahman R, Osei-Asante S, Owusu Antwi R. Household acquisition of medicines and disposal of expired and unused medicines at two suburbs (Bohyen and Kaase) in Kumasi - Ghana. *Pharm Innov J*. 2015; 4(8): 85-8.
  11. Jain S, Malvi R, Purviya JK. Concept of self-medication: A review. *Int J Pharm Biol Arch*. 2011;2:831-6.
  12. Shafie M, Eyasu M, Muzeyin K, Worku Y, Marti 'n-Arago 'n S. Prevalence and determinants of self-medication practice among selected households in Addis Ababa community. *PLoS ONE*. 2018;13(3):
  13. Keshari SS, Kesarwani P, Mishra M. Prevalence and pattern of self-medication practices in rural area of Barabanki. *Indian J Clin Pract* 2014;25(7):636-9
  14. Jain M, Prakash R, Bapna D, Jain R. Prevalence and Pattern of Selfmedication Practices in Urban area of Southern Rajasthan. *Ntl J of Community Med* 2015; 6(4):474-477
  15. Saba H, Shivananda KS, Jayan M, Hussain A. Prevalence of self-medication practices and its association factors in rural Bengaluru, Karnataka, India. *Int J Community Med Public Health*. 2016; 3(6):1481-6.
  16. Ira IJ. Present condition of self-medication among general population of Comilla district, Bangladesh. *The Pharma Innovation Journal*. 2015;4(1): 87-90.
  17. Marak A, Borah M, Bhattacharyya H Talukdar K. A cross-sectional study on self-medication practices among the rural population of Meghalaya. *Int J Med Sci Public Health* 2016;5:1134-1138
  18. Oztora S, Nepesova G, Caylan A & Dagdeviren H N (2017). The practice of self-medication in an urban population. *Journal of Biomedical Research*. 2017; 28 (14): 6160-6164
  19. Nagarajaiah BH, Kishore MS, Shashi Kumar NS, Panchakshari P. Prevalence and pattern of self-medication practices among population of three districts of South Karnataka. *Natl J Physiol Pharm Pharmacol*. 2016;6:296-300.
  20. Mousaeipour S, Ansari Jberri A, Negahban Bonabi T. The association between health literacy and self-medication behaviors among women referred to comprehensive health care centers in Sirjan City, Iran, in 2017. *JOHE*. 2018; 7(2):103-111
  21. Sharif SI, Abduelkarem AR, Bustami HA, Haddad LI, Khalill DS. Trends of home drug storage and use in different regions across the northern United Arab Emirates. *Med Princ Pract*. 2009; 19:355-8.
  22. Gitawati R. Pattern of household drug storage. *National public health journal*. 2014; 9(1): 27-31.
  23. Bashaar M, Thawani V, Hassali MA, Saleem F. Disposal practices of unused and expired pharmaceuticals among general public in Kabul. *BMC Public Health*. 2017; 17(1): 45.
  24. Wiczorkiewicz Sm, Kassamali Z, Danziger LH. Behind closed doors: medication storage and disposal in the home. *Ann Pharmacother*. 2013; 47:482-9.
  25. Kusturica MP, Sabo A, Tomic Z, Horvat O, Solak Z. Storage and disposal of unused medications: knowledge, behavior, and attitudes among Serbian people. *Int J Clin Pharm*. 2012; 34: 604-610.
  26. Obitte NC, Chukwu A, Odimegwu DC, Nwoke VC. Survey of drug storage practice in homes, hospitals and patent medical stores in Nsukka Nigeria. *Sci Res Essay*. 2007; 4: 1354-1359.
  27. Susi Ari Kristina, Chairun Wiedyaningsih, Azan Cahyadi, Bai AthurRidwan. A Survey on Medicine Disposal Practice among Households in Yogyakarta. *Asian Journal of Pharmaceutics* 2018; 12

- (3): 955.
28. Shwetha N and Ateendra Jha: Knowledge and Awareness Regarding Safe Drug Disposal System among General Population of India. *J Pharmacovigil.* 2018; 6(2): 256
29. Omotayo Fatokun, Ai Wei Chang, Wan NahNg, Thashini Nair, Vanitha Balakrishnan. Unused and expired medications disposal practices in the community: a cross-sectional survey in Cheras, Malaysia *Archives of Pharmacy Practice.* 2011; 2(3): 82-83.
30. Pankajkumar PD, Chacko S, Prakashkumar BS. Storage and disposal of medicines in home-a review. *J Pharm Res.* 2016; 10: 290-5.

How to cite this article: Chacko CT, Prakash D, Hafsa P et.al. A review on the attitude and practice on self medication, storage and disposal of drugs in a community. *International Journal of Research and Review.* 2020; 7(8): 122-129.

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