

**A STUDY ON THE PREVALANCE AND KNOWLEDGE ABOUT
USAGE OF HERBAL SUPPLEMENTS ALONG WITH ALLOPATHIC
DRUGS IN A SECTION OF PRESCRIPTION USERS**

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ABSTRACT:

Objective: The study was conducted to assess the prevalence and knowledge about usage of herbal supplements along with allopathic drugs in a section of prescription users in Chennai.

Materials and Methods: Patients visiting Pharmacies with prescription in different areas in Chennai, Arakonam, Kancheepuram and Thiruvallur district were selected. A structured questionnaire comprising of 14 items was administered through face to face interview. Responses from 554 people were analyzed.

Results: A total of 554 people were interviewed. The incidence of consuming herbal drugs along with prescription medicines is about 17% in the areas surveyed in and around Chennai. About 41% of the people using herbal drug supplements have intimated this to their physicians.

Conclusion: From this survey, we conclude that the number of patients using herbal drugs along with prescription drugs is not alarmingly high. Anyway, it will be worthwhile to educate the public as well as the healthcare providers regarding concurrent usage of allopathic medicines and herbal drugs. The pharmacists can play a major role in counseling the patients regarding possible drug interactions with herbal drugs.

KEY WORDS: Herbs, Drug interactions, Allopathy, Ayurveda.

INTRODUCTION

Until about 150 years ago, all medicines were used in their raw form and they were either plant or animal products. Most of the earlier medicines are described under the broad heading “HERBS”. Herb is a plant, or a part of a plant valued for its medicinal, savory or aromatic qualities. Plants have been used for medicinal properties long before recorded history. About two centuries ago, our medicinal practices were largely dominated by plant-based medicines worldwide. But gradually, these plant-based medicines gave way to synthetic drugs. One of the classic examples is that of Aspirin. The Willow bark, which is rich in Salicylic acid was used to relieve pain, inflammation and fever long ago. When Salicylic acid was found to be the main constituent responsible for the analgesic activity, it was synthesized and later Acetyl salicylic acid was also synthesized and marketed in 1900. It then totally replaced the traditional herb or the herb formulation. The medicinal use of herbs went into a rapid decline in the West when more predictable synthetic drugs came into the scenario. In contrast, many developing nations continue to benefit from the rich knowledge of medical herbalism.

According to World Health Organization about 80% of world population still relies mainly on herbal remedies.¹ The WHO has recently defined traditional medicine (including herbal drugs) as comprising of therapeutic practices that have been in existence for hundreds of years, before the development and spread of modern medicine and are still in use today.² The use of herbal remedies and alternative medicines is constantly increasing worldwide in the last 2 decades. Herbal supplement use in the USA increased from 2.5% in 1990 to 12.5% in 1997 to 18.6% in 2002. The prevalence of complementary and alternative medicine (CAM) including herbal therapy has steadily increased over the last two decades in some European countries.³

The utilization rate of herbs in India ranges from 32-63% in chronic medical conditions. Herb utilization in developed and developing countries has almost doubled in recent years especially when long term treatment is required. Herbs are known to be used in chronic illnesses such as Diabetes mellitus, CAD, COPD, Asthma, Arthritis, Gout and other chronic neurological disorders.

The increasing popularity of herbal medicines is due to the common belief among people that herbal products are natural and hence safe to self-medicate. Some also believe that herbal products are naturally better than synthetic drugs and that they are cheaper.

But this is a misbelief. Many of the herbal drugs can be potentially dangerous due to their adverse drug reactions and there are many cases of their interactions with prescription drugs. Drug-Herb interactions are based on the same pharmacodynamics and pharmacokinetic interactions as Drug-drug interactions.

Pharmacokinetic interactions include absorption in which Herbs that have hydro colloidal carbohydrate components such as gums and mucilage are soluble in water but poorly absorbable. Examples include Psyllium, Rhubarb, Flax seed. For example, Psyllium (An herb high in mucilage) inhibits the absorption of Lithium. Rhubarb and aloe can cause diarrhea,

which reduces the action of drugs that have a narrow therapeutic index (example: Digoxin, Warfarin).

The distribution is affected in Herbs such as Meadowsweet and Blackwillow, which contain pain reducing salicylate may displace highly protein bound drugs such as Warfarin and Carbamazepine thus increasing the adverse effects of these drugs. These products should not be taken concurrently.

Liquorice (as an herb, not a sweetener) decreases the metabolism of corticosteroids, leading to adverse and toxic effects from the built up of corticosteroids. Recently, researchers discovered that St.John'swort induces hepatic microsomal enzymes in the cytochrome P-450 system. Thus, it increases metabolism of drugs metabolized in this system, such as Digoxin and Theophylline, Protease inhibitors and Cyclosporins. The drugs are thus rendered less effective, so concurrent use of Liquorice with these drugs is not recommended

An example of Pharmacodynamic interaction is additive activity. For example, the hypnotic activity of Benzodiazepines is increased by Valerian and the anticoagulant action of Warfarin is enhanced by *Ginkgobiloba* and possibly by many other herbs. The interfering drug may act as an inducer, inhibitor or substrate of the cytochrome P450 enzyme that is responsible for the metabolism of the respective drugs. The herb St.John'swort has also been reported to inhibit the CYP 3A4 isoform and it increases expression of duodenal Pglycoprotein (PgP). Caution is warranted when using St.John'swort with several medicines like Barbiturates, Carbamazepine, Dextromethorphan, Fenfluramine, Fexofenadine, Narcotics, Nortriptyline, Phenytoin, Photosensitizing drugs, Reserpine and Simvastatin during pregnancy and lactation for the risks of potential interaction. Pharmacodynamic interaction affect a drug's action in a qualitative way, either through enhancing effects (synergistic or additive actions) or antagonizing effects.⁴ Hence it is very essential that patients be aware of the possible interactions of herbs along with conventional medicines and that they do not self-medicate themselves with herbal drugs along with their prescription medicines without informing their clinicians.

This pilot survey was planned to get an understanding about the prevalence of herbal drug usage and the understanding of various possible interactions with prescription drugs in a section of patients visiting pharmacies for purchase of prescription medicines in and around Chennai.

Some of the commonly used herbs, their side effects and reported drug interactions are

S. No	PRODUCT	SIDE EFFECT	DRUG INTERACTION
1.	Garlic	May increase the bleeding time with anticoagulants	Decrease the blood levels and toxicity of protease inhibitors like Ritonavir, Indinavir. ⁵
2.	Ginger	Increase the bleeding time of anticoagulants and decrease the effects of antacids.	Ginger might decrease the blood sugar level with Insulin, Chlorpropamide, Glipizide, Tolbutamide. ⁶
3.	Black pepper	Black and white pepper breakdown the medications in liver such as Lovastatin, Ketaconazole, Itraconazole etc.	Interacts with Phenytoin, Carbamazepine, Propranolol, Rifampicin. ⁷
4.	Cinnamon	Taking cinnamon bark along with diabetes medication might cause Blood sugar level to go too low.	1. Interacts with Glyburide, Insulin, Pioglitazone, Rosiglitazone. 2. Increased risk of phototoxicity with Tetracyclines. 3. Hepatotoxic drugs interacts with <i>cassia cinnamomeg</i> : Miodarone, Carbamazepine, Isoniazid, Methotrexate and Methyl dopa.
5.	Clove buds	Increase the bleeding time with warfarin, heparin etc	1. Interacts with NSAIDS such as aspirin, diclofenac, ibuprofen 2. It decreases the effect of antiepileptic drug in children.
6.	Green tea	Decrease the effects of warfarin and coronary vasodilators.	Green tea and aspirin should not be mixed hence they both prevent platlets from clotting. ⁸
11.	<i>Ginkgo biloba</i>	Bleeding.	Aspirin, warfarin(Coumadin), ticlopidine(Ticlid), clopidogrel(Plavix), dipyridamole(Persantine). ⁹
12.	St. John's wort	Gastrointestinal disturbances, allergic reactions, fatigue, dizziness, confusion, dry mouth, photosensitivity.	Antidepressants. ¹⁰

13.	Ephedra (<i>ma huang</i>)	Hypertension, insomnia, arrhythmia, nervousness, tremor, headache, seizure, cerebrovascular event, myocardial infarction, kidney stones.	Caffeine, stimulants, decongestants,
14.	Kava	Oral and lingual dyskinesia, torticollis, oculogyric crisis, exacerbation of Parkinson's disease, painful twisting movements of the trunk, rash.	Sleeping pills, Antipsychotics, alcohol.

MATERIALS AND METHODS

A questionnaire consisting of 14 questions was prepared incorporating the personal details of patients, the medicines which are prescribed for them and their usage of herbal medicines. Questions for studying their awareness about herbal supplements and their interactions with allopathic drugs were also present in the questionnaire.

QUESTIONNAIRE

QUESTIONNAIRE

1. Personal details:

Name: _____ Age: _____ Sex: M/F

2. What are the medicines prescribed?

- >
- >
- >
- >

3. For which disease, the medicines have been prescribed?

.....

4. Are you taking any other herbal formulation along with this? Yes / No

If No, what are the reasons? Personal / others.

If Yes,

A) What is the formulation?

B) Is it taken regularly? Yes / No

C) On whose recommendation or what is the source of information about the product?

.....

D) Where do you buy this herbal formulation?

.....

E) How long is the formulation taken?

.....

F) Is there any benefits after taking this formulation?

.....

G) Have you informed your doctor that you are taking these herbal drugs?

Yes / No

If No, why haven't you informed?

.....

H) Are you aware that herbal preparations can cause adverse effects or any drug interactions?

.....

Five Pharmacies in different areas in Chennai, Arakkonam, Kancheepuram and Thiruvallur district were selected for the survey. Data was collected by conducting a face to

face interview with people visiting the retail pharmacies with prescription. Surveys were conducted daily in the evening between 6 P.M and 8 P.M and on Sundays from 10.30 A.M to 4 P.M, in the months of April and May, 2016. The data were recorded in the questionnaire and these data were analyzed and reported.

RESULTS

A total of 554 people were interviewed, from that about 68% (n=378) are males and 32% (n=176) are females. The patients interviewed were predominantly males. The females interviewed were only about half the number of males. The reason which may be attributed for this difference could be the time chosen for the interview. **(Fig 1)**

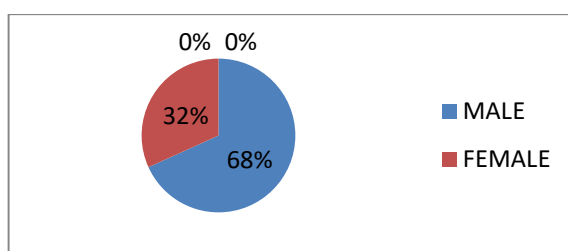


Fig 1: Male/Female ratio distribution

DISEASE	MALE	FEMALE
Diabetes	75(20%)	42(24%)
Hypertension	73(19%)	30(17%)
Kidney failure	12(3%)	3(2%)
Asthma	15(4%)	10(5%)
Arthritis	21(6%)	10(6%)
Miscellaneous(Fever, Cold, Joint pain, Thyroid disorder, Anemia)	182(48%)	81(46%)

Table 1: Types of prescriptions with different disease

The prescriptions were for different types of diseases (**Table 1**). Among the prescriptions, the number belonging to the miscellaneous category was the maximum. Following this, diabetes and hypertension were the next commonly seen diseases.

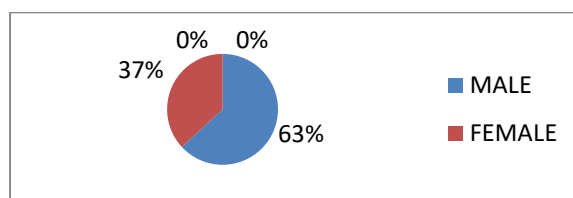


Fig 2: Male/Female ratio

A total of 95(17%) patients reported that they were using an herbal supplement along with the prescription medicines. The distribution of male and female patients who were using herbal supplements (**Fig 2**).Among the users of herbal supplements, the males were more in numbers than females.The age group distribution among males and females (**Fig 3a** and **Fig 3b**).

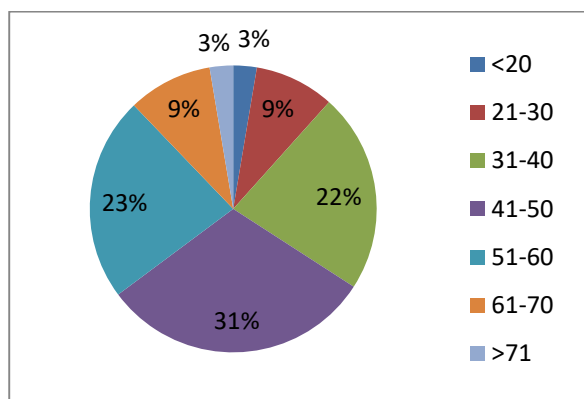


Fig 3a: Age group distribution among males

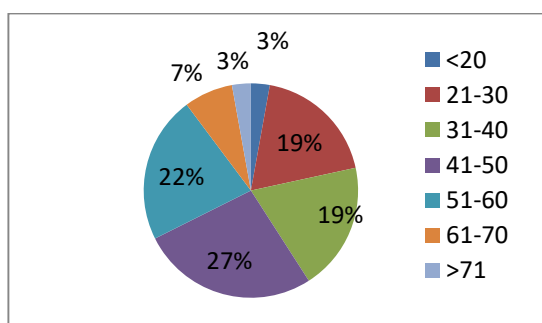


Fig 3b: Age group distribution among females.

The major source of information for both the males and females was from friends, relatives and neighbours followed by media. The incidence of doctors prescribing these herbal drugs was only 15% in males and 11.4% in females.The various source of information regarding herbal drugs (**Fig 4a &4b**).

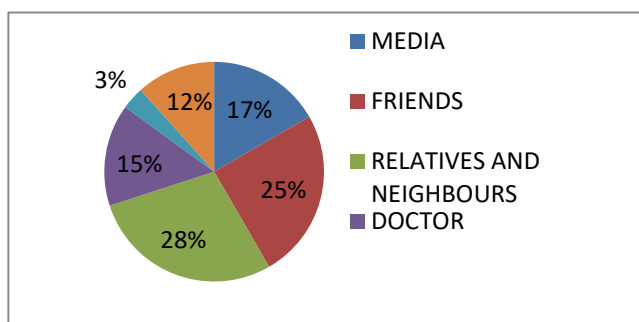


Fig4a: Source of information in males.

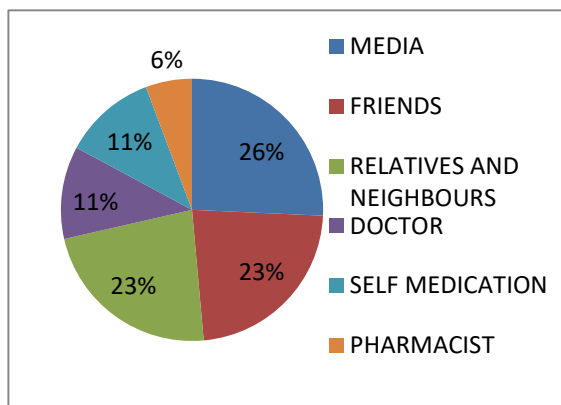


Fig 4b: Source of information in females.

It was seen that the majority of the patients purchased their herbal drugs from a Siddha/Ayurveda/Homeopathy outlet or from a Pharmacy. The place from which the herbal drugs were purchased (**Table 2**).

	MALE (n=60)	FEMALE (n=35)
SIDDHA, AYURVEDA, HOMEOPATHY OUTLETS	30(50%)	16(46%)
PHARMACY	27(45%)	17(48%)
SUPER MARKET	3(5%)	2(6%)

Table 2: Place from where the herbal drugs were purchased.

A total of 39 patients (41%) said that they have intimated their physicians regarding the herbal drug usage and the Male / Female ratio is given in **Fig 5**

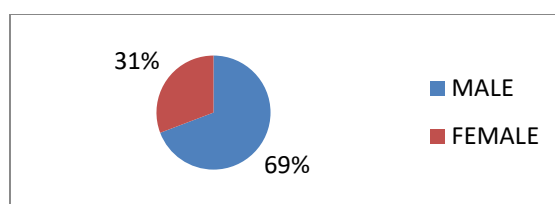


Fig 5: Male/Female ratio among those who have intimated their physicians regarding herbal drug usage.

The total number of patients who are aware of the possible adverse reaction and drug interactions with herbal drugs are 297 which is about 53.6% of population. Among the population who are aware of the possible adverse effect and drug interactions with herbal drug 71% are males and only 29% are females (**Fig 6**).

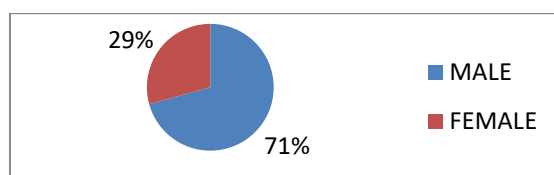


Fig 6: Male/Female ratio among people who are knowledgeable regarding herbal side effect and interactions.

Among the total number of patient interviewed, 253(45.7%) patients are not taking herbal formulation because they are aware of the possible adverse effect and drug interaction (Fig 7)

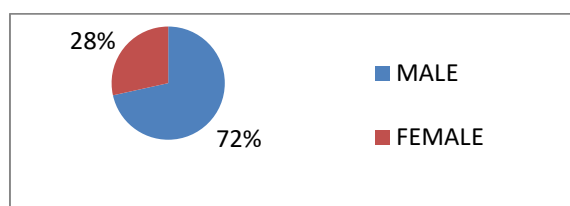


Fig 7: Male/Female ratio of the populations who are aware of herbal drug interaction and hence are not using them.

In this also, it is seen that the males contribute majority of the people who are aware of the possible drug interactions with herbal drugs and hence are not taking them.

Among the general population, 44(8%) patients are aware of the possible interactions but still are consuming them. The male/female ratio among this population (Fig 8).

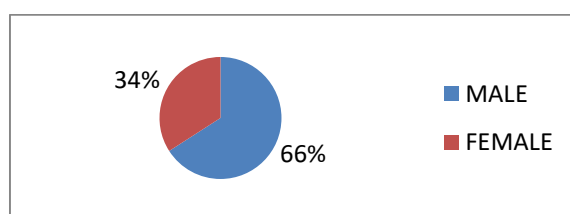


Fig 8: Male/Female ratio of herbal drug users who are aware of possible interactions and still taking them.

This shows that only a small proportion (8%) of the population is still taking herbal drug along with prescription medicines despite knowing about the possible herb- drug interaction. Among this population, females are only 35% while males are 65%.

DISCUSSION:

The incidence of consuming herbal drugs along with prescription medicines is about 17% in the areas surveyed in and around Chennai. This incidence corresponds well with some of the figures reported in western countries. The main source of information about herbal drugs

is from relatives, neighbours, friends and the media. The herbal supplements are mainly purchased from siddha, ayurvedha and homeopathy outlets from pharmacies.

About 41% of the people using herbal drug supplements have intimated this to their physicians. This is much higher than the incidence of reporting in countries like Jamaica, Scotland and Japan.

In general the male patients are better informed than the females. Despite being better informed, the majority of male patients continue to combine herbal drugs with prescription drugs. From this survey, we conclude that the number of patients using herbal drugs along with prescription drugs is not alarmingly high. This survey has concentrated on only a small percentage of total population and geographically concentrated only in and around Chennai where the levels of education are expected to be higher and the socio economic status is better. A larger number of patients need to be questioned covering a wider area in order to come to a definite conclusion about the prevalence and knowledge of herbal drug usage along with prescription medicine. Anyway it will be worthwhile to educate the public as well as the healthcare providers regarding concurrent usage of allopathic medicines and herbal drugs. The pharmacists can play a major role in counseling the patients regarding possible drug interactions with herbal drugs.

CONCLUSION:

From this survey, we conclude that the number of patients using herbal drugs along with prescription drugs is not alarmingly high. This survey has concentrated on only a small percentage of total population and geographically concentrated only in and around Chennai where the levels of education are expected to be higher and the socio economic status is better. A larger number of patients need to be questioned covering a wider area in order to come to a definite conclusion about the prevalence and knowledge of herbal drug usage along with prescription medicine. Anyway it will be worthwhile to educate the public as well as the healthcare providers regarding concurrent usage of allopathic medicines and herbal drugs. The pharmacists can play a major role in counseling the patients regarding possible drug interactions with herbal drugs.

CONFLICT OF INTEREST:

The authors have no conflicts of interest regarding this investigation.

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