



AN EVALUATION OF HOSPITAL PHARMACISTS' AND DOCTORS' KNOWLEDGE OF HERBAL MEDICINE

Manasa N*, Nazia Begum, Akila CR, Nikitha D, Pallavi A

KLR Pharmacy College, Paloncha, Bhadradi Kothgudadm, Telangana- 507115, India.

<p>Article Info</p> <p>Received 25/01/2023 Revised 15/02/2023 Accepted 18/02/2023</p> <p>Key words: Physician, Pharmacist, Herbal medication</p>	<p>ABSTRACT</p> <p>As patients are admitted to hospitals, the use of herbal medicines has been increasing and they are often combined with medications from other classes of medicine. The use of herbal medications by patients should be counseled more by pharmacists, according to earlier studies. To evaluate pharmacists' and physicians' perceptions of herbal products, phytopharmaceuticals, and dietary supplements: knowledge base, use, acceptability, attitudes, and beliefs. Physicians and pharmacists were assessed on their knowledge of pharmacology from a questionnaire consisting of 20 items, including 8 questions about herbal medicine. With Fisher's exact tests, variables such as age, sex, year post-graduate, years of experience, and specialty area were evaluated on the scores. The significance level was set at $p < 0.05$. Fifty-five percent of pharmacists believe their training is inadequate, while four out of ten physicians seem to believe they are not safe, and seventeen percent think they are not effective. Despite patient reports of adverse reactions, pharmacovigilance centers were not significantly used. Pharmaceuticals (69.3 percent) and physicians (27.6 percent) were believed to interact with other drugs by pharmacists and physicians, respectively. Pharmacists' perceptions of interaction possibilities were significantly affected by their year of graduation. A significant effect of cadre and years of practice was found on how physicians and pharmacists scored on the HP/PP/DS questions. Medical schools do not adequately prepare physicians on the pharmacology of herbal medicines and potential interactions. Including pharmacology of herbal medications in medical degree curricula and improving pharmacy curriculum need to be urgently addressed.</p>
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INTRODUCTION

In industrialized countries, the use of herbal products / phytopharmaceuticals / dietary supplements has been increasing at a time when a more general acceptance than previously seen has been observed. Increasingly, patients are combining allopathic medicines with other medicines without their doctors' or other healthcare providers' knowledge or permission [1, 2]. It has been reported that pharmacists [3, 4], physicians [5-7] and other health care providers [8] are increasingly accepting of complementary and alternative medicine (CAM).

However, CAM are often combined with allopathic drugs without their knowledge. Because of unexpected interactions and adverse drug reactions which may be attributed to the use of combinations, therapy may be at risk.

Health care providers have relatively poor knowledge about interactions and toxic effects among themselves in industrialized and developing countries. In general, pharmacists have a higher level of knowledge than physicians, who themselves have a higher level of knowledge than nurses and trainees. The use of this medicine appears to be associated with a better level of knowledge by doctors than those who do not use it [10, 11].

In Europe, USA, and other developing nations such as Turkey and Malaysia, there is a wealth of literature on physicians' and pharmacists' knowledge about HP/PP/DS. It appears that very little research has been conducted to assess pharmacist knowledge regarding

Corresponding Author
MANASA N

Email: - manasanakirtha@gmail.com



HP/PP/DS and no research has been conducted to assess physicians' knowledge.

In this study, two professions that patients usually encounter in hospitals - pharmacists and physicians - will be examined. A study evaluating the use, acceptability, attitudes, and beliefs of HP/PP/DS in secondary and tertiary hospitals pharmacies to understand some of the common interactions among them was conducted.

METHODS

Using government-owned secondary and tertiary care hospitals as a pilot study, herbal medicines were itemized. In this study, herbal medicines are defined as raw or refined extracts of plant origin, excluding minerals and vitamins, that are formulated into pharmaceutical formulations such as tablets, capsules, syrups and other oral products.

Supplements for sickle cell disease, such as multivitamin formulations containing ginseng, ginkgo biloba or vitamins, were also considered herbal medicine. Studies involving humans were conducted in accordance with ethical standards. During the administration of the questionnaires, informed consent was obtained from the participants, and anonymous responses were protected. Over 20 secondary and general hospitals are located in the locality, including two teaching hospitals. Study participants were selected from all secondary hospitals in the capital areas.

Physicians and pharmacists practicing at government hospitals were the only people eligible for inclusion. Each hospital's administration office provided the number of pharmacists. Several teaching hospitals provided the number of physicians. There are not enough pharmacists in tertiary hospitals, so secondary hospitals had to be incorporated. Due to their use of pharmacy technicians or nurses for dispensing drugs, private hospitals were excluded from the study. One hundred and seventy-five physicians and fifty pharmacists worked at the hospital. A total of 75 physicians consented to participate in the study. A questionnaire containing 11 items and a questionnaire containing 12 items was used to assess physicians' attitudes, beliefs, and knowledge regarding herbal medicines and phytopharmaceuticals. A pre-test of the questionnaires was conducted by five hospital pharmacists and four physicians before they were distributed to the respondents.

Physicians were asked for demographic information such as age, sex, and number of years of postgraduate learning, and pharmacists were asked for demographic data, years of experience, and area of specialization. Also included were multiple-choice questions regarding physicians and pharmacists' knowledge and experience with phytopharmaceuticals. In most hospitals, physicians and pharmacists are familiar with the common phytopharmaceuticals available. Four questions were used to assess their knowledge of the

indications and potential interactions. There were three correct answers to each question. In order to answer these questions correctly, peer-reviewed journal articles on the topic were consulted [13-18]. Answers were scored by giving a "1", while answer errors were given a "0".

During the study, we encountered the limitation of not being able to access physician consultants or chief pharmacists. Consultant physicians and both parties generally cited a lack of time and interest as their excuses.

Responses were analyzed using descriptive statistics. By using Fisher's Exact test, the pharmacists and physicians were compared and certain variables were assessed for their impact on knowledge base. We set a *p* value of 0.05 as the threshold for significant differences.

RESULTS

Physicians responded 89% of the time, while hospital pharmacists responded 80%. Males outnumbered females in the distribution of physicians (64% males; 36% females), but nearly equal in the distribution of pharmacists (44% males; 56% females). 60% of pharmacy students were grade I, 20.5% were senior pharmacists, 11% were principal pharmacists, and 8.9% were chief pharmacists. More than 70 percent had been practicing for one to five years, 24.1% for six to ten years, and 2.15 percent for eleven to fifteen years. Physicians with 1 to 5 years of practice made up the majority (86%) of the sample, followed by those with 6 to 10 years and 1.9% with 11-15 years of practice.

Pharmacy staff (68%) reported receiving requests for phytopharmaceuticals from patients, whereas physicians only reported receiving requests for phytopharmaceuticals from patients 14.25%. Pharmacists with requests for phytopharmaceuticals on a weekly basis (12.8%) were less likely than pharmacists with requests for them on a monthly basis (47.2%). When administered properly, phytopharmaceuticals are safe and effective (78%), according to pharmacists. Approximately 22% were uncertain about the safety and efficacy of the product. There was a large percentage of physicians who thought they were not safe and 19.7% who thought they were not effective when it came to these drugs. The percentage of participants who believed this group of pharmaceuticals was safe and effective was 3.1% and 7.8%, respectively, while 1.2% believed they just had a placebo effect. In addition, 24.2% had no idea what this group of drugs was like for safety or efficacy.

The offending agent was simply stopped by some patients. Patients reported nausea, itching of the skin, and headaches after taking HP/PP/DS, which stopped after withdrawal from the drug. Most pharmacists believe phytopharmaceuticals may interact with phytomedicine, but 16.7% do not believe so. There were 15.4% who were unsure. Similarly, 28.4% of physicians predicted phytopharmaceuticals would interact with other drugs, while 9.7% said they wouldn't. Some (58.4%) had no idea. In comparison with physicians with the same



number of postgraduate years of experience, pharmacists with 5 years or less of postgraduate experience (32%) believed that there might be interaction between treatments.

With respondents with 7 - 11 years of experience following graduation, the same effect was observed as well. In a survey conducted by the National Pharmacy Association, 13.8% of pharmacists and 60.2% of physicians said they were unaware that HP/PP/DS could interact with allopathic drugs, while 69.3% of pharmacists and 27.7% of physicians believed as much. Pharmacists described interactions between extracts of Gingko biloba and garlic, including a potentiating effect of warfarin's anticoagulant effect.

Three fifths (45.7%) of physicians believe that only doctors should prescribe HP/PP/DS to patients, and

forty-four percent (44.8%) think pharmacists should. Nearly 20% of respondents thought traditional medical practitioners (TMPs) should make the recommendations. A pharmacist, on the other hand, believed that pharmacists should be responsible for the recommendation since pharmacists are trained in HP/PP/DS, while 19.9 % thought doctors and pharmacists should be equally responsible; 3.1% believed the recommendation should be handled by TMPs.

HP/PP/DS recommendations should not be allowed by patent medicine dealers. A pharmacist also suggested involving the Traditional Medical Board (TMB). TMB should deal with it, according to others. On the basis of their cadre and years of practice, physicians and pharmacists obtained scores in Table 1.

Table 1: Influence of certain variables on the scores obtained by pharmacists and physicians.

Variable	Number of respondents obtaining scores				P value
	< 50%		≥ 50%		
	Pharmacists	Physicians	Pharmacists	Physicians	
Grade I Pharmacist	8	13	16	1	0.0001***
Principal/Senior Pharmacist	1	2	3	2	0.1026 ^{NS}
Years of Practice					
1 to 5yrs	9	39	18	1	<0.0001***
6to10 yrs	3	4	7	2	0.0290**
General	12	44	25	3	<0.0001***

DISCUSSION

A number of senior professionals expressed reluctance to participate in the study in both groups of professionals. According to the interviewee, they did not have enough time or did not have an interest. Their junior colleagues might be negatively affected by this.

Physicians had less formal and informal training than pharmacists. During the Bachelor of Pharmacy degree program, students are exposed to topics in herbal medicines and related areas. Some older pharmacists were also exposed to some recent HP/PP/DS findings through the continuing education programme. Allopathic agents were used and interacted with better by pharmacists in training. The vast majority of pharmacists rated the training offered as part of a bachelor's degree program as inadequate. It appears that pharmacists are becoming more knowledgeable about medicines as opposed to allopathic drugs. In addition, doctors received formal and informal training, but that training was not deemed adequate by the physicians.

There is a lack of adequate knowledge about HP/PP/DS among physicians in Western countries [10, 11]. This study may have been influenced by non-acceptance of the use of the method by most of the physicians, since use has also been associated with better knowledge. Among the health professionals who surveyed about HP/PP/DS, only 10% considered them to be safe and effective. Patient numbers approached by

each group of professionals are also widely dissimilar. Perhaps the physicians are not so receptive to the use of these methods due to the perception of the patients. In spite of the fact that HPs/PP/DS were defined on the questionnaires, there appears to be a serious difference in what both professionals consider to be a HP/PP/DS, based on the discrepancy between pharmacists who claimed to have received phytopharmaceutical prescriptions and physicians who wrote them.

Phytopharmaceuticals are also not commonly prescribed by doctors due to their perception of their efficacy and safety. It is more common for pharmacists to request HP/PP/DS on a regular basis. According to pharmacists, there have been a significant number of apparent interactions or adverse drug reactions (ADR) due to the use of HP/PP/DS. Reports of interactions and adverse events were received by pharmacists twice as often as by physicians. There were no reports made to pharmacovigilance centers in their area in relation to the number of complaints received from the patients who stopped taking the offending agents. It is possible that the low number of reported interactions can be attributed to the lack of belief that this class of drugs doesn't interact. They responded similarly to possible interactions between HP/PP/DS and allopathic drugs. Pharmacists and physicians both felt that pharmacists should have the authority to monitor and regulate sales and supplies, despite the fact that physicians believed other agencies



should do so. The pharmacists also agreed that they are best suited to recommend herbal medicines to patients due to their exposure to herbal medicine training, although many physicians disagreed.

Pharmacists' ability to score above 50% in the test was positively affected by their years of experience. Doctors, on the other hand, did not score differently by their years of graduation or experience. The results of a study in the United States by Suchard et al suggested that clinical experience, among other factors, did not significantly correlate with physicians' knowledge about herbal medicine adverse effects [10], which confirmed that both those with many years of experience and those with less than five years did not score well. Pharmacists' knowledge base was generally favored by years of practice as hospital pharmacists. Graduates who graduated less than six years ago scored higher than those who graduated more than six years ago. Physicians scored lower than pharmacists on average.

CONCLUSIONS

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The knowledge of physicians in the pharmacology of herbal medicines and phytopharmaceuticals is vastly different from that of hospital pharmacists. Continuing education programmes, workshops, seminars, and knowledge updates organized for these health care professionals should include some of the important topics on the pharmacology of common herbs in the locality. By doing this, they will be able to distinguish the ADRs following the ingestion of HP/PP/DS, understand the risks associated with combining them with allopathic medications, and counsel patients properly on phytopharmaceuticals. In addition, herb-drug interactions and herb adverse events reported in hospitals should be regularly reported to pharmacovigilance centers which can disseminate information to health care professionals. The importance and usefulness of pharmacovigilance centers to patient care needs to be intensified and educated to health care professionals.



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