

Full Length Research Paper

An evaluation of Pakistani pharmacy students' knowledge of herbal medicines in Pakistan

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The objective of study was to evaluate the knowledge of students on herbal medicines in Pakistan. To evaluate knowledge among the students, a questionnaire based study about herbal medicines was designed. Mean age of responding students was 22 years, some of them had used herbal medicines in past and some were still using. Majority of the students were interested in the information related to herbal medicines. The response of students about herbal medicines was good. But they had a little knowledge about their adverse effects. But some of them had no idea about the interaction between herbal medicines and allopathic medicines. Herbal medicine information should take a part of pharmacy curriculum for undergraduate students. Education program should be started amongst the pharmacists about the safety of herbal medicines in Pakistan.

Keywords: Herbs, students, perception, survey, Pakistan.

INTRODUCTION

Herbal medicines are also called botanical medicines and these are used for medicinal and therapeutic purposes. Herb is a plant or a part of plant used for its medicinal, aromatic or cookery qualities. Herbal medicine treatment is also used as phytotherapy and this name was given by French scientist, Henry Leclerc. In ancient times, herbs were also used as a therapy for mankind. But as we see, the history of herbal medicines was used by all the cultures (Fakeye et al., 2001). If it is to talk about the discovery of herbal medicines, various observations are made; (1) many of the herbs are obtained from wild animals and (2) some herbs are used in some conditions and other herbs are not used in the same disease. The interactions of herbs also cause potentiation of some diseases (Hegnauer, 1978). If a disease such as hypertension is treated with herbal medicines, the plant extract containing possibly large number of medicine is used.

From this, it can be concluded that they have a synergistic effect and this synergy of herbs also affects *in vivo* processes, such as absorption, metabolism and excretion (Kemper and Festschrift, 1975).

In the 20th century, most of the pharmacopoeia are derived which are written by the people having knowledge of endogenous herbs. A lot of herbs are used still for treating various diseases; the reason behind this is that most of the people believe that they have less toxic effects and more synergic effects (Naidu and Wilkinson, 2005). Indeed, there is at least one active agent which has a plant origin in 25% prescription in US. Example of atropine derived from atropine belladonna has a muscrinic effect, widely and acceptably used by the people. By using this method of the herbal therapy, the public also takes interest in this therapy. The use of herbal medicines worldwide is also due to their low cost and synergistic effect.

In Pakistan, there is no useful origin of information for herbal medicines. The objective of this study was to elaborate university students' awareness about herbal medicines.

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Table 1. Data showing correct answers regarding herbal medicines.

University/Institute	Success percentage (%)
WIL	74.27
CIIT	81.93
PIPS	65.14
HU	75.98

METHODOLOGY

Study design

The investigation of knowledge about herbal medications among undergraduate science students was completed through cross-sectional study design. The purpose of this survey was to establish knowledge among these science students and to check their current knowledge regarding herbal medicines. Data were assembled by questionnaires and through face-to-face interviews. The survey was assessed by the combined efforts of faculty members and students of COMSATS Institute of Information Technology (CIIT), Abbottabad. In this study, both male and female participants were included, such that, the number of respondents from CIIT were 1832, out of which 877 were females and remaining were male (955). Number of participants from Hazara University was 837, out of which 287 are female and 550 are male students. Total strength of students from Pakistan Institute of Professional Studies (PIPS) was 93 including 60 male and 33 female students. The strength of responding students from Women Institute of Learning (WIL) was 68 (all were female). This study was approved by the Board of Advanced Studies and Research (Local Ethical Committee), COMSATS Institute of Information Technology, Abbottabad, Pakistan. A two stage random sampling methodology was employed. During stage 1, students were selected through simple random sampling and stage 2 covered the assortment of students from other locations. The students were briefed, the aim of the study and then obtained sanction from the students to participate in this study. The filling of questionnaires was conducted in the presence of an expert researcher for assisting the respondents, if required.

Study location

Four institutes [COMSATS Institute of Information Technology (CIIT), Hazara University (HU), Pakistan Institute of Professional Studies (PIPS) and Women Institute of Learning (WIL)] were selected as research-rigorous organizations.

Data collection

This survey was conducted using a structured pre-channeled questionnaire containing 28 different closed-ended questions. Every question had four options with one correct answer. The questionnaire contained questions on demography and students' knowledge about herbal medications. Twenty queries were about herbal medicines including introduction, history, general and herbal drugs, such as, the herbal drug, which causes the contraction of heart muscles, is called digitalis. It is extracted from the plant, Foxglove, and can play an important role in treating heart failure patients. In this survey, introductory data was collected from the students, such as age, sex and level of education in various categories of students. To check the knowledge about herbal medicines, questions were asked from the students about interaction, side effects and synergic effects of various medicines.

Demographic information consists of age, sex and year of their studentship. The respondents were also permitted to add any additional information regarding their knowledge about herbal medicines. After pilot-testing for content and design on 25 students, necessary modifications were made in the questionnaire. The students were not allowed to use any helping material and discussion among each other. A complete examination environment for 15 to 20 min was provided to the students so that their personal knowledge about herbal medicines could be assessed (Hasan et al., 2000).

Data analysis

Data was analyzed using Statistical Package for Social Sciences (SPSS) version 13.0 using one way analysis of variance (ANOVA) with confidence interval of 95%.

RESULTS

Total number of participating students was 2830. Students who replied correctly (success rate) were 74.22%, out of which 48.88% were males and 25.34% were female students. Out of 837 students of HU, 636 students could correctly reply the questions with a mean percentage of 75.98%. Out of 1832 students of CIIT, 1501 (in which pharmacy students were 341 and remaining were from engineering, business administration and earth science departments) correctly answered the questions with a success rate of 81.93%. Out of 68 students of WIL, 51 correctly responded to the questions, so the success rate was 74.27%. Out of 93 students of PIPS, 56 answered the questions correctly at a success rate of 65.14% (Table 1).

About one third of the pharmacy students (34.02%) respond that they are well trained in the field of herbal medicines, while 38.2% of the students reply that they are not yet well trained about herbal medicines. From this, it can be concluded that there is need of teaching and training for more knowledge on herbal medicines at university level studentship. 2% students also expressed that the pharmacists cannot be expert in the field of herbal medicines. About 95% of pharmacy students showed that the pharmacists have more knowledge about the herbal drugs as compared to the students of other professions. Most students (44%) believed phytotherapy is safe. Regarding safe and synergistic effects of the herbal medicines, 16.22% students believe that herbal medicines show these effects and 2% of students show no confidence about the efficacy and safety of herbal medicines. While 12% of students realize that they have no idea about synergistic effects, safety and efficacy of herbal medicines.

Regarding possible interactions or adverse effects of herbal medicines, 68.7% of the students believe that interactions may occur with herbal medicine interaction, while 15.2% of students realize that there is no interaction with herbal medicines, and about 15.11% of students have no idea about such interactions.

DISCUSSION

Many eastern and western countries use herbal medicines for treatment, because it is cheap and accessible. Present results depict that pharmacy students have good knowledge about herbal drugs than the students of other disciplines, because of their experience in the field of pharmacy. In questionnaire, some questions were found easy for students of 1st professional year, but some were difficult for them. As question 1 is about definition of the herbal medicines, which is so simple that each and every student easily answered it. The students of pharmacy profession believed that they would gain a lot of knowledge about herbal medicines from the course work of bachelor degree of pharmacy. Present curriculum of pharmacy (in the subject of Pharmacognosy) has enough coverage of herbal medicines. The herbal medicine training, which is a part of pharmacy degree, is objected by most of the pharmacists and is considered insufficient. It reveals that the pharmacists want to know more about herbal medicines just like they know about allopathic medicines (Annual report of the Eastern Mediterranean Region, 2005). This training, which is a part of bachelor degree of pharmacy, was however rated as being inadequate by majority of the pharmacy students. This seems that the worldwide trend as pharmacists would want to know much about herbal medicines as they do about allopathic agents.

Concerned to other questions related to the knowledge of herbal drugs, students of higher classes took a lead as they have covered most part of the syllabus and know more about herbal drugs than their juniors, for example, as they were asked about the herbal drug "digitalis", for what purpose it is used? And its correct answer is "it is used in heart failure" because it has effect on the contraction of heart muscles.

According to a previous study, fresh pharmacy graduates had more knowledge about herbal medicines than older graduates and generally pharmacy teachers have more knowledge than the students. Pharmacists also believe that due to their training in herbal medicines, they are best liable to prescribe the herbal drugs to the patient than the physicians (Chang et al., 1999).

In the part of questions regarding herbal history, results are out of order. It means that only few of the students know basics history of herbal drugs. When they were asked about the scientist who first introduced the term of "phytotherapy" and correct answer is "Henri Leclerc", only 10% of the students could correctly answer this question. This shows their interest that how much they consult books and to what extent they are keen to study history of herbal medicines. This shows that students have kept themselves limited to the lecture notes as provided by the teachers to prepare for examination as a guideline. In nature, books are the friends and tell the solution of every question. With the help of this research, one more thing which is personally observed is that study does not mean

only to get good marks, rather to get useful knowledge that could benefit us in our daily life. In Pakistan, it is a common practice of students to get good grade points in examinations with the help of notes, and it should be discouraged.

Coming back to this study topic that is about herbal medicines and their role in daily life, students were asked about general methods used for the extraction, purification and manufacturing of the crude drugs. Most (84%) of the students answered this question correctly. Our survey reveals that lectures should be delivered about herbal medicines to the students as a part of their syllabus. It is also observed that pharmacists have greater knowledge about herbal medicines than other professional who have no idea about herbal medicines (Suchard et al., 2006; Chang et al., 2000; Murtaza et al., 2011). As a result, it can be suggested that if topics related to herbal medicines could be included in pharmacy curriculum for undergraduate students training, students' knowledge can be improved in this context.

Conclusion

The use of herbs among pharmacy and other students is widely spread but they have insufficient information about the side effects, interaction and synergistic effect of herbal medicines. Pharmacy students know more about the use of herbal medicines. The increased use of herbal medicines necessitates getting more education and updated information regarding herbal medicines. All this can be possible by involving herbal medicines in the curriculum for students. The pharmaceutical associations can play a vital role in introducing herbal drug to be prescribed by pharmacists. So, these pharmacists can properly educate people by giving them knowledge about phytopharmaceuticals.

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