



Pharmacy Students' Perception towards Clinical Pharmacognosy Course

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Authors' contributions

This work was carried out in collaboration among all authors. Authors NJA and MSAK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AA and MZ managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study was to identify pharmacy student's perception towards clinical pharmacognosy.

Methodology: This is a cross-sectional study that was conducted in Al-Kharj. The survey contains 2 parts; the Level of the students and pharmacy students' perception towards the clinical pharmacognosy course. The data were collected and analyzed using Excel software.

Results: About 51.20 % of the students said that clinical pharmacognosy is an interesting subject. About 57.60% of them said that clinical pharmacognosy is an integral part of clinical pharmacy practice but only 28.80% of them agreed that clinical pharmacognosy should be a mandatory part of the pharmacy curriculum. Approximately 68.00% of the students agreed that clinical pharmacognosy provides sufficient knowledge about mechanisms of actions, indications, proper dosing and side effects of herbal drugs.

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Conclusion: It is concluded that pharmacy students showed positive perceptions towards the clinical pharmacognosy course. It is important to increase the awareness of pharmacy students about clinical pharmacognosy in order to prescribe herbal drugs correctly and to educate health care professionals and patients about the efficacy and safety of the herbal products.

Keywords: Clinical pharmacognosy; perception; pharmacy students.

1. INTRODUCTION

In present era of rapid development in the field of medical sciences, more than 80% of people are inclined towards the usage of herbal drugs or medicines prepared from other natural sources such as herbs, animal and marine particularly in the developing world [1]. Pharmacy is one of these sciences that is a branch related to healthcare services [2].

Pharmacognosy is the study of medicines of natural sources, has been a part of medical arts and sciences since mankind first began to manage different diseases [3]. Clinical pharmacy is a branch that includes several aspects such as optimum medications use, therapeutic knowledge, therapeutic drug monitoring, and counseling. A clinical pharmacist collaborates with doctors in multidisciplinary rounds and meetings and would advise regarding the appropriate use of medications [4].

Nowadays, drug discoveries have been increasingly adopting traditional medicine based approaches in order to improve the treatment outcomes and to decrease adverse events. Thus, new branches of pharmacognosy have been established such as clinical pharmacognosy, analytical pharmacognosy and industrial pharmacognosy [5].

There are numerous unproven therapeutic benefits and undisclosed adverse events and toxicities in standardizing natural treatments [6-10]. In order to address these concerns, more researches about these treatments and about clinical pharmacognosy are needed. Clinical pharmacognosy is a bridge between botanicals knowledge and clinical research providing pharmaceutical and clinical researchers, doctors and other healthcare specialists with the main information they need to assist the progress of herbal and traditional medicines [1].

It is very difficult for a clinical pharmacist to offer full information without knowledge of pharmacognosy, because crude medications and natural products have very different

pharmaceutical characteristics from the chemical medications containing a single compound [9]. In order to use crude drugs safely and effectively, it is important to integrate the clinical pharmacy discipline and pharmacognosy discipline in one discipline called "clinical pharmacognosy" [9].

With the intention of using herbal and traditional drugs rationally and adding standard clinical values to them, dispersing of clinical pharmacognosy attributes may facilitate to improve health of community. [11] The Aim of this study was to identify pharmacy student's perception towards clinical pharmacognosy.

2. METHODOLOGY

This cross-sectional study was conducted to describe the perceptions of pharmacy students towards clinical pharmacognosy course. The questionnaire was adapted from a previous study that was conducted Shakeel et al. (2015) in Pakistan [1].

Only pharmacy students in Al-Kharj were included in the study. So, the students in other colleges were excluded from the study. The survey contains 2 parts; the first part included the Level of the students and the second part included questions regarding students' perception towards the clinical pharmacognosy course.

The data were collected from pharmacy students in the first semester, 2020. The data were collected and analyzed using Excel software and represented as frequencies and percentages. The confidentiality of the answers was preserved in the study.

3. RESULTS AND DISCUSSION

The questionnaire was filled by 125 students. Most of them were in level 7 (24.80%), level 5 (21.00%) and level 9 (15.20%). Each academic year contains 2 levels, so the duration of pharmacy education in the university is 5 years or 10 levels. The duration of Bachelor of Pharmacy program of several universities in the

Middle East study is five years and range from 160-265 credit hours [12].

Table 1 shows the level of the students who filled the questionnaire.

Table 2 shows the students' perception towards the clinical pharmacognosy course. About 51.20 % of the students said that clinical pharmacognosy is an interesting subject. About 57.60% of them said that clinical pharmacognosy is an integral part of clinical pharmacy practice but only 28.80% of them agreed that clinical pharmacognosy should be a mandatory part of the pharmacy curriculum.

Approximately 68.00% of the students agreed that clinical pharmacognosy provides sufficient knowledge about mechanisms of actions, indications, proper dosing and side effects of herbal drugs. Moreover 80.80% of the students agreed that pharmacist should have sufficient knowledge about herbal drugs to provide consultancies to prevent various drugs and food interactions and 78.40 % of them said that pharmacist should be able to educate the public about indication, dose and adverse effects of herbal drugs.

About 75.20% of the students said that clinical pharmacognosy is important in carrying out research in any field of pharmacy and most of them agreed that clinical pharmacognosy is essential to work in herbal industries as well as in research and development department of pharmaceutical industries (75.20%) and also it is essential to work in pharmaceutical analysis centers and in regulatory affairs such as Saudi Food and Drug Authority (71.20%).

The role of clinical pharmacognosist includes application of the knowledge about natural source pharmacotherapy, instructing providers and counseling of patients about the possible benefits and the potential adverse events of

herbs after taking the medical history properly [1]. Patients should know the claims made for any herbal product and should always purchase these products from a trustworthy provider [4].

Our study explored pharmacy students' perspective about clinical pharmacognosy and its course in Pharmacy curriculum. The majority of the students agreed that clinical pharmacognosy is an interesting and important subject but it should be elective course. Similarly, Shakeel *et al. reported that pharmacy* students possess sound knowledge of clinical pharmacognosy and its significance [1]. But in contrast to our results, Shakeel *et al. reported most of the students agreed that* clinical pharmacognosy should be a mandatory part of the pharmacy curriculum [1].

The majority of the students in the present study said that herbal drugs are safer than synthetic drugs when take in right indication and right dose (61.60%). Similarly, Efferth and Kaina reported that herbal drugs are safe but herbs can even cause adverse effects, drug-drug, drug-food and herb-drug interactions if not used appropriately [7].

Nowadays, pharmacognosy is somewhat neglected as a major subject area within the modern pharmacy curricula [13]. Moreover, the word pharmacognosy may not be that visible in the pharmacy curricula in several countries such as the UK and USA but some of its contents are still present in various forms and names such as phytotherapy, natural medicines, drug discovery from natural products/medicinal plants, herbal therapy, and phytopharmaceuticals [13]. Pharmacognosy will remain to be a significant and an essential contributor to the knowledge and understanding of natural products and therapies, and so should be an integral part of any meaningful academic pharmacy programs world over [13].

Table 1. The level of the student

Variable	Category	Number	Percentage
Students Level	Level 3	8	6.40
	Level 4	13	10.40
	Level 5	21	16.80
	Level 6	18	14.40
	Level 7	31	24.80
	Level 8	15	12.00
	Level 9	19	15.20

Table 2. Students' perception towards the clinical pharmacognosy course

Variable	Category	Number	Percentage
Clinical pharmacognosy is an interesting subject	Agree	64	51.20
	Neutral	39	31.20
	Disagree	22	17.60
Clinical pharmacognosy should be the mandatory part of the pharmacy curriculum	Agree	36	28.80
	Neutral	43	34.40
	Disagree	46	36.80
Clinical pharmacognosy should be an integral part of clinical pharmacy practice	Agree	72	57.60
	Neutral	33	26.40
	Disagree	20	16.00
This subject increases clinical knowledge about herbal drugs used in clinical practice	Agree	91	72.80
	Neutral	20	16.00
	Disagree	14	11.20
Clinical pharmacognosy provides sufficient knowledge about mechanisms of actions, indications, proper dosing and side effects of herbal drugs	Agree	85	68.00
	Neutral	23	18.40
	Disagree	17	13.60
Herbal medicines provide the best prophylaxis treatment	Agree	58	46.40
	Neutral	44	35.20
	Disagree	23	18.40
Herbal drugs are effective in treatment of the mild to moderate pathologies.	Agree	92	73.60
	Neutral	22	17.60
	Disagree	11	8.80
Herbal drugs will be sufficiently covered in clinical pharmacognosy course.	Agree	71	56.80
	Neutral	37	29.60
	Disagree	17	13.60
Natural sources are important to derive medicinally important constituents	Agree	93	74.40
	Neutral	21	16.80
	Disagree	11	8.80
Herbal drugs are safer than synthetic drugs when take in right indication and right dose.	Agree	77	61.60
	Neutral	31	24.80
	Disagree	17	13.60
Herbal drugs are used as palliative treatment in case of chronic diseases.	Agree	58	46.40
	Neutral	40	32.00
	Disagree	27	21.60
A pharmacist should have sufficient knowledge about herbal drugs to provide consultancies to prevent various drugs and food interactions.	Agree	101	80.80
	Neutral	14	11.20
	Disagree	10	8.00
A pharmacist should be able to educate the public about indication, dose and adverse effects of herbal drugs.	Agree	98	78.40
	Neutral	19	15.20
	Disagree	8	6.40
Clinical pharmacognosy is important in carrying out research in any field of pharmacy	Agree	94	75.20
	Neutral	18	14.40
	Disagree	13	10.40
Clinical pharmacognosy is essential to work in herbal industries as well as in research and development department of pharmaceutical industries.	Agree	94	75.20
	Neutral	22	17.60
	Disagree	9	7.20
Clinical pharmacognosy is essential to work in pharmaceutical analysis centers and in regulatory affairs such as Saudi Food and Drug Authority.	Agree	89	71.20
	Neutral	23	18.40
	Disagree	13	10.40

4. CONCLUSION

It is concluded that pharmacy students showed positive perceptions towards the clinical pharmacognosy course. They also interested to

attend the course but as an elective course (only 28.80% of the students said that clinical pharmacognosy should be a mandatory part of the pharmacy curriculum). It is important to increase the awareness of pharmacy students

about clinical pharmacognosy in order to prescribe herbal drugs correctly and to educate health care professionals and patients about the efficacy and safety of the herbal products.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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