



Pharmacy, Medicine and Nursing Students' Perceptions about Learning Pharmacology

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Authors' contributions

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

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ABSTRACT

Aim: This study aims to evaluate health students' perceptions toward pharmacology.

Methodology: This study included a self-administered questionnaire that inquired concerning their perceptions about learning pharmacology. The survey was translated to Arabic language and after that it was validated and converted to online Google Form and then the link was sent to the students.

Results: Most of the students was less than 22 years old (67.90%) in addition to that most of them were females (81.48%). About 38.27% of the respondents were pharmacy students. More than 90% of the respondents said that pharmacology is an interesting subject in the university courses. Most of the students agreed that there should be more emphasis on studying case studies not only theoretical teaching (88.89%).

Conclusion: The study found that the perceptions of students regarding pharmacology were positive. It is important to add a practical training for pharmacology in the hospital not only teaching it theoretically. Moreover, it is important to integrate pharmacology horizontally with other related course such as pathophysiology and pharmacotherapy.

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1. INTRODUCTION

Students' perceptions comprise effective methodologies for improvement on teaching basic medical sciences including pharmacology [1,2]. Several educational studies have been conducted regarding the perceptions of students toward learning and teaching as well as the factors that affect students learning in undergraduate programs [3,4]. The majority of these studies focused on students' feedback about teaching and assessment methodologies, learning outcomes, educational environment and academic staff [5].

The perception of the student is an accepted means of developing teaching methodologies and revising teaching and evaluation methods for undergraduate curriculums globally [1,2,6,7]. Furthermore, student perception is used in order to facilitate the learning of pharmacology material by identifying which teaching approaches students perceive to be the most effective strategies [8].

Student feedback has been considered to be an effective methodology for alteration of the curriculum of undergraduate students and also for making pharmacology learning more practicable and interesting [2]. Numerous studies on the perceptions of students about pharmacology learning documented the improvements in students' performance by improved learning and teaching processes [9]. Thus, the feedback of student is considered a helpful tool for improving the performances of the students when suggestions obtained from students are applied [10].

Pharmacology is a vital subject for health students who are going to be future health care professionals [11] and so it is important that these students appreciate the principles of pharmacology and are able to relate and implement them in the clinical practice [1]. Traditionally, pharmacology teaching in health schools follows a lecture-based and a discipline-based approach with a heavy emphasis on acquiring factual knowledge about medications [12] and does not train the students sufficiently in their therapeutic application [13]. Generally, the knowledge of pharmacology is poor among health care specialists [1]. Though the need for improved clinical pharmacology education is clear, there is slight modifications in

the teaching approaches during the past several decades [12,17,18].

Understanding recent perceptions held by future health care professionals regarding pharmacology and its role in both clinical practice and research may be helpful for improving the teaching on this subject and also for introducing suitable modifications into the curricula where and when needed. This study aims to evaluate health students' perceptions toward pharmacology.

2. METHODOLOGY

This study included a self-administered questionnaire that inquired concerning their perceptions about learning pharmacology in Saudi Arabia. The survey was adapted from a study that was conducted at a single private institute in Malaysia [11].

The survey was translated to Arabic language and after that it was validated and converted to online Google Form and then the link was sent to the students.

The survey included 2 parts; the first part was the personal data of the students and the second part included the main questions about the students' perceptions. Students in the colleges of pharmacy, medicine and nursing were included in the study. The exclusion criteria include students in other colleges. Furthermore, all of the incomplete surveys were excluded.

The data were collected and analyzed using excel software and after that the data were represented by percentages and numbers.

3. RESULTS AND DISCUSSION

The survey was filled by 81 health students. Most of the students was less than 22 years old (67.90%) in addition to that most of them were females (81.48%). About 38.27% of the respondents were pharmacy students. Table 1 shows the personal data of the students.

Table 2 shows the main questions about the students' perceptions toward pharmacology. The present study shows that more than 90% of the respondents said that pharmacology is an interesting subject in the university courses and about 34.57% of them said that pharmacology is

Table 1. The personal data of the students

Variable	Category	Number	Percentage
Age	18-19	21	25.93
	20-21	34	41.97
	22-23	19	23.46
	More than 23	7	8.64
Gender	Male	15	18.52
	Female	66	81.48
Specialty	Pharmacy	31	38.27
	Medicine	31	38.27
	Nursing	19	23.46

Table 2. The students' perceptions toward pharmacology

Variable	Category	Number	Percentage
Pharmacology is an interesting subject in the university courses	Agree	73	90.12
	Not Sure	6	7.41
	Disagree	2	2.47
Pharmacology is the best subject in the university courses	Agree	28	34.57
	Not Sure	29	35.80
	Disagree	24	29.63
Studying pharmacology help health students in choosing and administering drugs rationally in the future practice	Agree	75	92.59
	Not Sure	4	4.94
	Disagree	2	2.47
Pharmacology should be integrated horizontally with some other course such as pathophysiology and pharmacotherapy	Agree	45	55.56
	Not Sure	12	14.81
	Disagree	24	29.63
There should be more emphasis on studying case studies not only theoretical teaching	Agree	72	88.89
	Not Sure	3	3.70
	Disagree	6	7.41
There should be a practical course for pharmacology in the lab not only theoretical part	Agree	75	92.59
	Not Sure	2	2.47
	Disagree	4	4.94
There should be a practical training for pharmacology in the hospital not only theoretical part	Agree	72	88.89
	Not Sure	3	3.70
	Disagree	6	7.41
It would be difficult to deal with case studies unless pharmacology is given simultaneously with practical learning	Agree	54	66.67
	Not Sure	14	17.28
	Disagree	13	16.05
Health colleges' students should take more credit hours and more courses about pharmacology during your study	Agree	52	64.20
	Not Sure	13	16.05
	Disagree	16	19.75
The best methods for examinations is/are: (You can choose more than one answer)	Written examination	40	49.38
	Presentation and discussion	37	45.68
	OSCE exam*	41	50.62
	Case studies	56	69.14
Do you prefer to study using	Textbook	32	39.51
	Class notes**	49	60.49
Do you think that pharmacology learning methods is appropriate in your school	Yes	73	90.12
	No	1	1.23
	Don't know	7	8.64
Do you think that the practical hours should be increased during your study	Yes	39	48.15
	No	23	28.40
	Don't know	19	23.45
Do you think or wish to work in a profession related to pharmacology	Yes	47	58.02
	No	23	28.40
	Don't know	11	13.58

*OSCE exam is a test clinical skill performance and competence in skills. **Class notes refers to PowerPoint slides

the best subject in the university courses. Most of the respondents agreed that studying pharmacology help health students in choosing and administering drugs rationally in the future

practice (92.59%) and about 55.56% of them agreed that pharmacology should be integrated horizontally with some other course such as pathophysiology and pharmacotherapy.

Furthermore, most of the students agreed that there should be more emphasis on studying case studies not only theoretical teaching (88.89%), there should be a practical course for pharmacology in the lab not only theoretical part (92.59%), there should be a practical training for pharmacology in the hospital not only theoretical part (88.89%) and that health colleges' students should take more credit hours and more courses about pharmacology during your study (64.20%).

Regarding the best methods for examinations and studying, most of the students said that case studies (69.14) and objective structured clinical examination (OSCE exam) (50.62) are the best methods for examinations. Additionally, 60.49% of them preferred to study using class notes (PowerPoint slides) not textbooks. About 58.02% of the students think or wish to work in a profession related to pharmacology.

In contrast to our results, Abdulghani and Al-Naggar [11] reported that only 4% of the students find pharmacology lecturers interesting and stimulating and only 28% agreed that pharmacology is the favorite subject in the basic sciences. Amberkar et al. [14] showed also that students don't consider pharmacology as a favorite subject.

But similar to the results of the present study, Abdulghani and Al-Naggar reported that 62% of the students would like pharmacology to be more closely integrated with the clinical sciences and would like real cases in hospital to be used during problems stimulated learning [11]. Moreover, Abdulghani and Al-Naggar [11] reported that 42.6% of the students agreed that they will consider Pharmacology as one of their subjects for post-graduation. Dhami et al. [15] stated that about 61.3% of the students in their study agreed that pharmacology is a favorite subject but the preferences for pharmacology as a subject in post-graduation was low (18.5%). They also stated that high proportion of students wanted the faculty members to make more use of case based learning (96.6%), more clinical pharmacology (97.5%) and more use of Audio-Visual aids (93.3%) to be introduced in the curriculum for effective learning [15].

Similar to the results of the presents study, the need for more integration of pharmacology with

clinical sciences has been supported by several organizations [16,17].

4. CONCLUSION

The study found that the perceptions of students regarding pharmacology were positive. It is important to add a practical training for pharmacology in the hospital not only teaching it theoretically. Moreover, it is important to integrate pharmacology horizontally with other related course such as pathophysiology and pharmacotherapy. Furthermore, it is important to encourage students to participate in the regular assessment of teaching methods and to implement the suggestions of the students about improving the teaching method as reported by Prasad et al. [18] because the regular reviewing of the perception and feedback of the students help the academic lecturers to plan the curriculum and improve the methodologies of teaching.

CONSENT

As per international standard or university standard, Participants' 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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