

Pharmacy students' perception about education and future career

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ABSTRACT

Objective: The study was to determine the Sudanese pharmacy students' opinions and to measure their satisfaction about education instructions and to reveal their impact on the future carrier. **Materials and Methods:** Cross-sectional study was conducted by using pretested self-administered questionnaire among final year pharmacy students in Sudan. **Results:** A total of 455 students from both public and private colleges were participated in the study. Combined one-way direct with interactive method was dominant (74.5%) and was preferred by (74.3%). The English was the major instruction language (62.9%), which was preferred by (66.6%) of the participants. More than 3-quarters of the students had chosen the pharmacy as first choice. Students believed that pharmacy provides good future career. There was a significant association between the students' satisfaction about choosing pharmacy as career and current academic performance ($P = 0.004$). **Conclusion:** The obtained results provide an insight into students' opinions on different issues concerning pharmacy education instructions. These data could be utilized as an indicator of the general trends and a guideline for improving pharmacy education in Sudan.

Key words: Instruction, perception, pharmacy students, Sudan

INTRODUCTION

Pharmacy with other health professions is a core stone in the health care profession world-wide. It has the responsibility for delivering effective, safe and rational use of medicines.^[1] Pharmacy education refers to continuous education from pre-service education to continuing professional development relating to the lifelong training in practice and science.^[2] The basic sciences subjects, such as chemistry, biology, physics and mathematics are necessary as preparation step for applied ones, as well as for pharmaceutical researches. Patient-oriented education is becoming an essential component of pharmacy education in the developed countries. However, many undergraduate

pharmacy programs in developing countries remain restricted to traditional pharmaceutical sciences with minor touch to the knowledge about patient care.^[3] Sudan is not an exception, since most of pharmacy colleges adopting a traditional type of pharmacy education.^[4] Different studies were conducted to evaluate the role of instruction methods in the pharmacy colleges.^[5] Determination of the current state of pharmacy education, methods of instruction and pharmacy career concepts from student's point of view may help in the assessment and analysis the suitability of existing situation. The objective of this study was to determine the Sudanese pharmacy students' opinions, perception and satisfaction on the education instructions and to reveal their impact on future carrier.

MATERIALS AND METHODS

Research design

Cross-sectional prospective study was carried out during the period of September to December 2011 to determine the Sudanese pharmacy students'

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perspectives on pharmacy education and on methods of instruction. The study was approved by the Committee of Postgraduate Studies, Faculty of Pharmacy, University of Gezira.

Study population

The students who enrolled in the faculties of pharmacy in Sudan at the time of this study were involved. The targeted population was the final year students of pharmacy in randomly selected faculties in both governmental and private universities. Verbal inform consent was obtained from each accepted participant.

Sampling method and sample size

A proportionate, convenient random sampling method was used to generate the sample size of the participants. Suitable sample size was determined according to the registered pharmacy students in the selected colleges at the time of data collection. Sample volume of 500 students was decided.

Study instrument

An inclusive questionnaire was used to elicit the general opinions of the students on different assigned variables and to best address the study's objectives. The questionnaire consisted of four parts. The first part dealt with students' demographic characteristics and basic information on: Gender, age, academic level, academic status, first intake grade etc. The second part of the questionnaire dealt with nature of the future work, whether private or governmental sectors or pharmaceutical companies or hospitals. The third part composed of assorted questions on different education core indicators. The last part constituted of six questions (three open questions and three closed ones) on whether this type of research may raise awareness to improve the methods of instruction in pharmacy education and investigating whether the Sudanese pharmacy students well convinced and dully satisfied with their pharmacy education or not. The survey tool was tested for internal consistency and then piloted with random convenient sample. The piloted data was not included in the study sample.

Data analysis

Statistical analysis was performed by using the Statistical Package for Social Sciences (SPSS) windows version (18). The differences in the participants' responses were analyzed with Chi-square test. The 0.05 level of significance was used as a cut-off for statistical significance.

RESULTS

A total of 455 students successfully filled the questionnaire with response rate 91%. The participants were from both public 245 (53.8%) and private 210 (46.2%) colleges of pharmacy in Sudan. The majority 366 (80.4%) were females and most of them 282 (62%) aged between 20 and 22 years, almost 417 (91.6%) of the participants were living in urban areas [Table 1].

Table 2 shows the reasons for selecting pharmacy as a career. Most of the respondents 361 (79.3%) have chosen pharmacy as a first choice career. Out of those who preferred to study pharmacy; 110 (30.5%) were preferred pharmacy due to its good future career; while only 7 (1.9%) of them preferred it because, it provides a good social image. No significant differences were observed when correlating between the reasons for selecting pharmacy as a career and the family income ($P = 0.509$), nor the degree of their parents' education level ($P = 0.293$).

Table 1: Participants' demographic characteristics

Character	Frequency	Percentage
Gender		
Male	89	19.6
Female	366	80.4
Age		
20-22	282	62
23-25	161	35.4
>25	12	2.6
Residence		
Urban	417	91.6
Rural	38	8.4
Students' family income		
High	46	10
Intermediate	386	84.8
Low	23	5.1
University		
Governmental	245	53.8
Private	210	46.2
High school certificate grade		
93-90	115	25.3
89.9-85	132	29.0
84.9-80	119	26.2
79.9-75	59	13.0
74.9-70	24	5.3
69.9-65	6	1.3
Current cumulative GPA		
Excellent	44	9.7
Very good	160	35.2
Good	208	45.7
Acceptable	43	9.5

GPA=Grade point average

The study showed that the majority 402 (88.4%) of the respondents were preferred to work in urban areas. on the other hand; 293 (64.4%) of the respondents preferred to work in private sectors, while 162 (35.6%) preferred to work in governmental or public sectors. There was no significant difference ($P = 0.60$) when correlating between the students residence and their preference of the future working sector.

Regarding the students' satisfaction about selecting pharmacy as career; 410 (90%) out of them were satisfied. Significant association was observed when correlating future as career and their current academic performance, ($P = 0.004$). The outstanding students were the more who satisfied in their pharmacy selection.

The majority of the respondents 103 (22.6%) were preferred clinical pharmacy as a future career, while 11 (2.4%) of them were preferred social and administrative pharmacy as a future career. There was a high significant difference between male and female ($P < 0.001$), male were preferred business job while female were preferred hospital pharmacy [Table 3].

The study showed that the most adopted methods of instruction in colleges of pharmacy were the combined both one-way lectures and interactive ones (student active involvement) 339 (74.5%). This method was preferred by 338 (74.3%) students [Table 4].

Most colleges used traditional methods (black, white/ board-chalk/ pen) and electronic aids (multimedia) as the lecture delivery method 345 (75.8%) and these were the preferable methods of instruction 293 (64.4%).

The study revealed that, the most adopted language of instruction in Sudanese faculties of pharmacy was English 286 (62.9%), which was the preferable instruction language for two-third 303 (66.6%) of students. Most of the respondents preferred English as language of instruction because it is a global one 138 (30.3%) and those who preferred a combined English and Arabic as the language of instruction for better understanding were 129 (28.4%) while 86 (18.9%) students admitted that English is the only language for all references in pharmacy.

Regarding the post-lecture learning advice; 220 (48.4%) of the students affirmed that the lecture handouts were the adopted types, whereas 167 (36.7%) of them were preferred to rely on the lecturers handouts as post-lecture learning advice, while only 4 (0.9%) had

preferred to adopt internet searching and seminars as post-lecture learning advice [Table 4].

Results showed that 399 (87.7%) of the colleges of pharmacy in Sudan were adopted more than one type of questions in their exams, multiple choice questions (MCQs), short-answer questions and long essays. These adopted types of questions were the preferred ones among the students 189 (41.5%).

The results were illustrated that, 164 (36%) of the students were preferred lecturers who teach the more important courses, while 154 (33.8%) of the students were preferred lecturers with acceptable personality and charismatic gesture. Only 6 (1.3%) preferred the lecturers who liberally displayed higher degrees.

Table 2: Reasons for choosing pharmacy as a career

Reasons for choosing pharmacy as a career	Frequency	Percentage
Good job opportunity	81	22.4
Good future career	110	30.5
Good scientific knowledge	27	7.5
Good chance to serve community	39	10.8
Good social image	7	1.9
To satisfy my family desire	17	4.7
Good job opportunity, good future career and good scientific knowledge	23	6.4
Good job opportunity, good future career, good scientific knowledge, good chance to serve community and good social image	21	5.8
Good job opportunity, good future career, good scientific knowledge and good chance to serve community	17	4.7
Good future career and good scientific knowledge	10	2.8
Good scientific knowledge and good chance to serve community	9	2.5

Table 3: Preferred future pharmacy job versus their gender, ($P < 0.001$)

Preferred future pharmacy job	Frequency	Percentage	Male f (%)	Female f (%)
Hospital pharmacy	103	22.6	9 (10.1)	94 (25.7)
Community pharmacy	92	20.2	13 (14.6)	79 (21.6)
Business (agencies)	46	10.1	20 (22.5)	26 (7.1)
Pharmaceutical companies	30	6.6	10 (11.2)	20 (5.5)
Pharmacy management	28	6.2	5 (5.6)	23 (6.3)
Academia	42	9.2	11 (12.4)	31 (8.5)
Pharmaceutical industry	74	16.3	12 (13.5)	62 (16.9)
Pharmacy administration	11	2.4	3 (3.4)	8 (2.2)
Free work	12	2.6	2 (2.2)	10 (2.7)
Others (clinical pharmacy)	17	3.7	4 (4.5)	13 (3.6)
Total	455	100.0	89	366

Table 4: Adopted and preferred method of instruction in pharmacy colleges

Method	f (%)		Chi-square test (P value)		
	Adopted	Preferred	Gender	Intake grade	Current GPA
Method of instruction					
One-way lecture	98 (21.5)	57 (12.5)	0.918	0.244	0.604
Interactive methods	16 (3.5)	58 (12.7)			
Combined (one-way lecture and interactive methods)	339 (74.5)	338 (74.3)			
Others (internet and seminars)	2 (0.4)	2 (0.4)			
Methods of lecture					
Traditional (black, white/board-chalk/pen)	11 (2.4)	44 (9.7)	0.223	0.515	0.983
Electronic aids (power point)	99 (21.8)	118 (25.9)			
Both	345 (75.8)	293 (64.4)			
Language of instruction					
English	286 (62.9)	303 (66.6)	0.077	0.098	0.841
Bilingual	169 (37.1)	145 (31.9)			
Arabic	0 (0)	7 (1.5)			
Types of post-lecture learning advices					
Your own lecturer's notes	29 (6.4)	54 (11.9)	0.284	0.258	0.870
Lecturer's handouts	220 (48.4)	167 (36.7)			
Lecturer's advice to library text references	21 (4.6)	107 (23.5)			
Others (internet and seminars)	3 (0.7)	4 (0.9)			
Your own lecturer's note, lecturer's handouts and lecturer's advice to library text references	90 (19.8)	46 (10.1)			
Your own lecturer's notes and lecturer's handouts	56 (12.3)	36 (7.9)			
Lecturer's handouts and lecturer's advice to library text references	36 (7.9)	24 (5.3)			
Your own lecturer's notes and Lecturer's advice to library text references	36 (7.9)	17 (3.7)			
The type of question					
MCQs	47 (10.3)	172 (37.8)	0.629	0.574	0.328
Short-answer questions	3 (0.7)	74 (16.3)			
Long essays	6 (1.3)	20 (4.4)			
All above	399 (87.7)	189 (41.5)			

MCQs=Multiple choice questions, GPA=Grade point average

The current study revealed that, the majority of the students, 401 (88.1%) believed that the students' evaluation for the teaching staff is important and of value, while 28 (6.2%) believed that it's of no value and even not important.

Regarding the premises, 257 (56.5%) of the students were not satisfied with their colleges' libraries, while 273 (60%) of them were not satisfied with the colleges' class rooms and 293 (64.4%) of them were not satisfied with the colleges' laboratories.

The current study indicated that 201 (44.2%) of the respondents thought that this collected data will help in improving the pharmacy education in Sudanese colleges of pharmacy, while 53 (11.6%) thought the opposite, 25 (47.2%) out of the latter group doubt that this collected data will help in improving the pharmacy education, because they think that decision makers are not used to response to problem solving research outcomes.

Furthermore, 220 (48.4%) of the students were satisfied about their college education to some extent, 121 (26.6%) were satisfied while 114 (25.1%) were not satisfied. The reasons for the dissatisfaction include: No professional staff 26 (22.8%), unprepared premises and laboratories 23 (20.2%), old and not developed curriculum 26 (22.8%) and other reasons 39 (34.2%) respectively.

In contrast, only 45 (9.9%) of the students were not satisfied about their selection to study pharmacy. The main reasons for dissatisfactions were that, insatiable their ambition 15 (33.3%), limited and unimproved sciences 9 (20%) and no relation between the curriculum and the practice 7 (15.6%).

DISCUSSION

Students' perception about their methods and tools of instruction as well as their satisfaction of the infrastructure of their colleges are important in upgrading their education knowledge outcomes.

The obtained results are interesting and provide an insight into students' opinions on different issues concerning pharmacy education. Results could be utilized as an indicator for the general trends to improve pharmacy education in Sudan and/or a guideline data for further intervention to upgrade the current situation.

The study revealed many factors that influencing the students' satisfaction about their under graduate education. Most of the students who satisfied about selecting pharmacy study performed better academically.

The dominant intake were female students, which was observed in most Sudanese colleges of pharmacy as the present study revealed that (80.4%) of the students were females. The proportion of female students within the pharmacy colleges were found to be predominant as observed in the United States^[6] and other different Arab countries.^[7]

Regarding lecture delivery methods; students preferred power point presentations lectures delivery methods over the traditional "chalk and talk" or the use of transparencies and an overhead projector. These results were similar to those reported by Seth *et al.*^[8] Traditional teaching methods had been gradually replaced by audio-visually electronic aids in teaching medical students world-wide.^[9] The current study revealed that most colleges of pharmacy in Sudan adopting the combined both the interactive and one-way-delivery methods. A study by Tanahoung *et al.*, found that interactive lectures provided a marked improvement in student learning over traditional instruction.^[10] A new study conducted in Saudi Arabia showed that 60.7% of students admitted that one combined direct and interactive methods of instruction were the adopted methods at their colleges.^[11]

Sudanese students were preferred the easy way of post-lecturers' handouts. This was the adopted method in most of Sudanese pharmacy colleges and a minority was interested in internet searching and uploading information through seminars. A study conducted among undergraduate Egyptian pharmacy students, disclosed that the preferred methods for self-study are students' own notes and lecture handouts.^[12]

Most students were preferred English language as teaching media because it's a global one. This preference differs from results obtained in the study among Saudi pharmacy students and other Indian

one which showed a preference of using both mother tongue and English language.^[11,13]

Regarding the exam questions; most of the students preferred the method that already was adopted by their colleges on that, the examinations contain short-answer questions, MCQs and long essays. Many pharmacy colleges in Malaysia assess their students using the same methods,^[14] although the majority of medical students considered the MCQs as one of the difficult assessment methods.^[15]

The current study revealed that 88.1% of pharmacy students emphasized the importance of evaluating teachers by their students and this reflects a crucial challenge to boost training and qualification programs for lecturers. This was strongly recommended by similar results obtained from many studies which supported the importance of these evaluation methods.^[16-18]

Many factors influenced pharmacy students to pursue a career in pharmacy profession. Family, peer friends, work and volunteer experiences are factors influencing student attitudes toward pharmaceutical care, career aspirations.^[19] In the current study, (22.6%) were preferred clinical pharmacy as a future career. Male students preferred business job while female were preferred hospital pharmacy. In a similar study conducted in Pakistan; more than half of the students preferred non-pharmacy career, while clinical pharmacy was preferred by (24.6%) and hospital pharmacy by (15%) as a future career.^[20]

CONCLUSION

Sudanese pharmacy students satisfied to some extent about their college learning instruction methods. They were preferred the adopted type of instruction, but they were not satisfied with their colleges' premises. The preferable future career is the clinical pharmacy. The authors recommend a strict internal and an external auditing that includes infrastructures, staffing and curriculum evaluation should be officially instituted for upgrading the level of pharmacy education in Sudan.

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