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ORIGINAL ARTICLE

Pharmacy education in Saudi Arabia: A vision of the future

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Abstract *Background:* Pharmacy education in developing countries faces many challenges. An assessment of the challenges and opportunities for the future of pharmacy education in Saudi Arabia has not been conducted. *Objectives:* The purpose of the study was to ascertain the views and opinions of pharmacy education stakeholders regarding the current issues challenging pharmacy education, and to discuss the future of pharmacy education in Saudi Arabia. *Methods:* A total of 48 participants attended a one-day meeting in October 2011, designed especially for the purpose of this study. The participants were divided into six round-table discussion sessions with eight persons in each group. Six major themes were explored in these sessions, including the need to improve pharmacy education, program educational outcomes, adoption of an integrated curriculum, the use of advanced teaching methodologies, the need to review assessment methods, and challenges and opportunities to improve pharmacy experiential training. The round-table discussion sessions were videotaped and transcribed verbatim and analyzed by two independent researchers. *Results:* Participants agreed that pharmacy education in the country needs improvement. Participants agreed on the need for clear, measureable, and national educational outcomes for pharmacy programs in the Kingdom. Participants raised the importance of collaboration between faculty members and departments to design and implement an integrated curriculum. They also emphasized the use of new teaching methodologies focusing on student self-learning and active learning. Assessments were discussed with a focus on the use of new tools, confidentiality of examinations, and providing feedback to students. Several points were raised regarding the opportunities to improve pharmacy experiential training, including the need for more experiential sites and qualified preceptors, addressing

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variations in training quality between experiential sites, the need for accreditation of experiential sites, and the use of technology to track experiential activities and assessments. *Conclusion:* Several challenges for improving pharmacy education in Saudi Arabia were discussed by stakeholders. To tackle these challenges facing most pharmacy schools in the Kingdom, national efforts need to be considered by involving all stakeholders.

1. Introduction

Globally, there are calls to advance pharmacy education (Anderson et al., 2008; Zellmer et al., 2013). Therefore, a Global Pharmacy Education Task Force was established to enhance pharmacy education development and encourage international research to develop guidance, tools, and better understanding of key issues facing pharmacy education (Anderson et al., 2008). In developing countries, the challenges and expected educational outcomes of pharmacy programs could be different from those of developed countries.

To improve pharmacy education in developing countries, issues and challenges facing the current educational system must be explored. Although there are efforts to characterize pharmacy education and the challenges facing education and training in some countries (Brazeau et al., 2009; Austin and Ensom, 2008; Ryan et al., 2008; Sosabowski and Gard, 2008; Marriott et al., 2008; Bourdon et al., 2008; Kheir et al., 2008; Asiri, 2011; Aljadhey, 2013, 2012; Al-Wazaify et al., 2006), exploring the challenges and future of pharmacy education by qualitative design using stakeholders in Saudi Arabia has not been conducted. In Saudi Arabia, with the increase in pharmacy schools and programs (especially the Doctor of Pharmacy program), a plan is needed for the future of pharmacy education to ensure that the graduates will meet the expected needs of the country. The purpose of this study was to ascertain the views and opinions of pharmacy education stakeholders toward the current issues challenging pharmacy education, and to discuss the future of pharmacy education in Saudi Arabia. This will stimulate discussion about pharmacy education globally in countries with similarities in the status of pharmacy education.

2. Methods

An exploratory qualitative inquiry was conducted using group discussions for the generation of data. A topic guide was developed; the topics included the need to improve pharmacy education, program educational outcomes, adoption of an integrated curriculum, the use of advanced teaching methodologies, the need to review assessment methods, and the challenges and opportunities to improve pharmacy training in Saudi Arabia. A one-day meeting was conducted in October 2011 in Riyadh, Saudi Arabia. A selected sample of stakeholders was invited, including experts in medical education in Saudi Arabia, deans of pharmacy schools in Saudi Arabia, alumni, directors of pharmacy services departments, directors of community pharmacy chains, and current students.

The participants were divided into six groups. Each group contained eight persons. Each group consisted of individuals from different backgrounds to facilitate discussion and exchange ideas (Kitzinger, 1994). Groups were numbered to allow the moderator to call individuals by group number. Participants were given 45 min to discuss the topic among themselves and write down their main points. One person from the group was nominated to report on behalf of the group.

The discussion session was videotaped, transcribed verbatim, and coded. Then, common themes were generated from the transcript by two independent researchers, using thematic content analysis (Felicity, 2002).

3. Results

A total of 48 participants participated in the round-table discussion. Participants discussed six topics regarding pharmacy education as follows.

3.1. First topic: do we need to improve pharmacy education in Saudi Arabia? Why?

This topic was discussed to explore participant perceptions about the current state of pharmacy education in Saudi Arabia. The participants agreed that pharmacy education in the country needs to be improved. The reasons included the changing expectations of employers, the need to change in the pharmacist's role from product- to patient-centered, the need to improve the assessment of students' achievements, the need to better use modern teaching technologies, and the need to include topics in the curriculum such as communication skills, social pharmacy, information technology and medication safety. So, participants agreed on the need for improvement in pharmacy education in Saudi Arabia.

3.2. Second topic: educational outcomes of pharmacy education

This topic was discussed among participants to ascertain their views on the educational outcomes of pharmacy education. It was clear that the participants agreed on the need for clear and national educational outcomes for pharmacy programs. This was intensified by the need to distinguish the differences between the Bachelor of Pharmacy and Doctor of Pharmacy degrees. These outcomes need to be clear, measureable and consistent on the national level.

3.3. Third topic: the development of integrated curriculum

Participants identified some of the challenges facing the development of curriculums based on integrated courses. Since course integration is a new way for building curriculum in the Kingdom, faculty members need to be oriented to the

advantages of an integrated curriculum and the need to work in a collaborative way between individuals from various departments to make this integration successful. Since collaboration between departments may be insufficient, reviewers should assess the outcomes of integrated courses to be sure curricular goals are being met.

> One participant commented: "The departments within the school are not working together, No available integrated references, no available reviewers to assess the courses, and sometimes there is no available curriculum committee that will decide about the courses."

Several solutions were mentioned to overcome challenges to implement integrated courses, which mainly focused on the collaboration between faculty members. It was also highlighted that the curriculum is owned by the college not each department.

> "The department should have less power on the curriculum and courses should be shared by other departments and monitored by the administration of the college."

Participants raised some challenges and suggested solution for implementing integrated curriculum.

3.4. Fourth topic: advanced teaching methods in pharmacy education

The participants discussed current teaching methods and the need to use new methods in the future, the need to focus on self-directed learning, to use technology more frequently, and to improve communication between faculty members and students.

> One participant commented: "First, for the methods we are using mainly lectures, laboratory work and small group activities. Second, we need in pharmacy education to teach students how to search for the information and how to discuss it in the class room. We need an interactive communication and discussion between faculty members and students to improve the students' communication skills, psychomotor skills and critical thinking. Third, we use some of the new technologies in teaching but we still need to use simulation for laboratories and blackboard."

> "We have to emphasize the use of technology, because old methods are really insufficient. We need to make the blackboard more efficient, some faculty members have been trained to use blackboard but not all of them, and students, they have no idea what it is all about. We also need teaching assistants because in active learning we need help, as we are going to divide large groups into small and we need to train facilitators and preceptors on these methods."

Participants prefer self-directed learning over traditional didactic teaching.

> One participant commented: "[with self-directed learning] there is more in-depth knowledge achievement, there is more stability of the knowledge over time, the graduates do better in the future if they follow this trend of self-directed learning, they will be faster in searching for information, it will be more enjoyable and it will create a team work environment among the group."

Participants identified ways to improve the poor interaction between students and faculty members.

> One participant commented: "Decrease the number of students accepted in the college, increase the number of faculty members, decrease the content of courses due to duplication of the topics between departments, implement student center education, let the students take the topic and discuss it with each other, then make a discussion in small group for more interaction, Use a "U" shaped classroom design with a smaller numbers of students."

Participants emphasized the importance of using new teaching methodologies focusing on student self-learning and active learning.

3.5. Fifth topic: method of examination and evaluation of students

This topic of discussion explored the perception of faculty members regarding the methods of examination and assessment.

> One participant commented: "There should be a clear policy and procedure for assessment within the college, for each course what are the assessment methods we are going to use and how the examination will be analyzed. For example: we found that sometimes for certain topics or courses when we deliver the MCQ kind of examination, the time is around 1 h and the number of questions is 50 and sometimes it is 100 questions instead, there should be a guideline that includes all the details like the number of MCQs and time allocated for each question."

> "We agree that there should be a blueprint and mapping for all examinations because sometimes it happens that there is a certain topic covered in the examination and another important one forgotten. This shows how important it is to have a clear blueprint for all courses identified before the course starts so we can build our assessment examination based on the blue print."

Participants paid special attention to the confidentiality of examinations.

> One participant commented: "Examination confidentiality is important and it reflects the credibility and quality assurance of the examination. There have been a couple of incidents reported that happened at different colleges that some students hijacked the examination through the internet from different departments so the examination should conducted in a closed unit without an internet connection and there should be only an intranet connection and there should be clear access control. Faculty members should not try to write the examination questions from his office or the secretary's office because it will affect the confidentiality of examination."

Participants showed the importance of feedback to students after the examination.

> One participant commented: "We should get feedback about the results at the end of the examination, and then we know which questions were difficult to improve the quality of the examination in future and we need to meet with students and show them the correct answer".

Assessments were discussed with a focus on the use of new tools, confidentiality of examinations, and providing feedback to students.

3.6. Sixth topic: experiential education

Several issues were raised regarding the challenges and the improvements needed for pharmacy training. These issues included the need for more training (experiential) sites, the need for more qualified and trained preceptors, variations in training quality between training sites, insufficient duration of training, lack of accreditation at a training site, and not using technology to track training activities and assessment.

> One participant commented: *"It's difficult for the college to fully supervise the training; this is one issue. The second is variation at the hospital level. Also, the preceptors in the hospitals need training for how we would like our students to be trained."*

> *"We have discussed several issues and one of them is expanding the sites of training. We need clinical faculty from the college to work part time in hospitals, those faculty will precept students and also can help supervise students trained at that hospital."*

> *"Another issue is that the duration of training is short and we have one of the students at this table who mentioned that the duration of training is short."*

> *"We have also discussed the assessment of training and it is important to have a really rigorous type of assessment and accreditation of training sites."*

> *"Last thing is the use of technology to track training activities, achievements, documentation and evaluation either for preceptors or pharmacy students."*

Several points were raised regarding the opportunities to improve pharmacy experiential training, including the need for more experiential sites and qualified preceptors, addressing variations in training quality between experiential sites, the need for accreditation of experiential sites, and the use of technology to track experiential activities and assessments.

4. Discussion and conclusion

This group discussion explored challenges and opportunities to shape the future of pharmacy education in Saudi Arabia. Several topics were discussed, including the need to improve pharmacy education, program educational outcomes, adoption of an integrated curriculum, the use of advanced teaching methodologies, the need to review assessment methods, and challenges and opportunities to improve pharmacy experiential education.

Participants agreed that pharmacy education in the country needs improvement. Participants agreed on the need for clear, measureable, and national educational outcomes for pharmacy programs in the Kingdom. Participants raised the importance of collaboration between faculty members and departments to design and implement an integrated curriculum. They also emphasized the use of new teaching methodologies focusing on student self-learning and active learning. Assessments were discussed with a focus on the use of new tools, confidentiality

of examinations, and providing feedback to students. Several points were raised regarding the opportunities to improve pharmacy experiential training, including the need for more experiential sites and qualified preceptors, addressing variations in training quality between experiential sites, the need for accreditation of experiential sites, and the use of technology to track experiential activities and assessments.

In the learning outcomes theme, the need for clear, measureable, and national educational outcomes for pharmacy programs was mentioned. Establishing these outcomes can be accomplished by assembling a group of stakeholders and experts to develop these outcomes on a national or regional level. In the United States, the Center for the Advancement of Pharmacy Education published the 2013 Educational Outcomes, which were developed according to a systematic process (Medina et al., 2013).

The use of teaching methods that focus on student self-learning and interactive participation is an important element for improving pharmacy education. To accomplish this, there are many strategies, including flip classroom methods where students get the lecture materials before class and the class time is utilized for discussion (Blouin et al., 2009; Berrett, 2012). However, it is important to pilot these methods to identify success factors for these methods. It is also important to evaluate the effectiveness of these methods.

Improving assessment and examinations is the key to improving learning. Various methods can be introduced to assess students, including student reflections on activities (Wallman et al., 2009; Austin et al., 2008).

A detailed discussion of the challenges and future of introductory and advanced pharmacy practice experience was carried out previously (Aljadhey, 2013, 2012). However, early exposure, using simulation to assist in training, standardization of the training, and establishing a coordinating body to link all schools and training sites are important goals.

Our study had several limitations. Some participants might not have contributed to the discussion because of the large size of the group discussions. Also, the discussion was only carried out for one day and hence one-to-one interaction and discussion was not possible. Although this study identified specific challenges facing pharmacy education, it focused only on certain areas. Other challenges for pharmacy schools that were not discussed include the recruitment and retention of faculty and clinical preceptors with appropriate qualifications and training and the lack of expertise in systematically building curriculum and evaluating the outcomes of the curriculum. Schools of pharmacy may not have an appropriate assessment procedure, and may not focus on building attitudes and leadership skills in students.

Pharmacy practice in Saudi Arabia has developed over many years. In the last two decades, the focus has started to move from products to patient care. Pharmacists mainly practice in hospitals, community pharmacies, the pharmaceutical industry, and health and drug authorities. Given the various options of practice for pharmacists in Saudi Arabia, both the Doctor of Pharmacy and Bachelor of Pharmacy programs are available. Hospital administrators are asking for more clinical pharmacists. However, community pharmacy is not well-developed, and a very small number of our graduates practice in community pharmacies. Community pharmacies are most often staffed in Saudi Arabia by expatriates. This underlines an important opportunity to improve practice in the community setting. It is

important at this point to define the scope of pharmacy practice in Saudi Arabia. The Saudi Pharmaceutical Society can play an important role in collaboration with other stakeholders, such as pharmacy practitioners, pharmacy educators, and health regulators. This step is important in directing the future of pharmacy education in the country.

The future for pharmacy education should incorporate the abovementioned comments. Other important initiatives may include establishing more residencies and fellowship programs, establishing centers for innovation in pharmacy education, improving the model of pharmacy practice in community pharmacies, involving pharmacists and pharmacy students in home health care, and establishing an association for pharmacy schools in gulf countries.

In conclusion, several challenges to improve pharmacy education in Saudi Arabia were discussed by stakeholders. Higher education experts and other pharmacy schools may consider these factors. National efforts need to be taken to collectively tackle these challenges facing most pharmacy schools.

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