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Original Article

## Changes in student perceptions after a semester-long interprofessional education activity in Qatar



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### المخلص

**اهداف البحث:** أصبح التعليم المتداخل بين التخصصات مندمجا بسرعة ضمن معايير الاعتماد الجامعي في جميع أنحاء العالم. ولكن، تأثير التعليم المتداخل بين التخصصات على تعلم الطلبة وممارستهم لا زال غير معروف إلى حد كبير في الشرق الأوسط. يصف هذا البحث أنشطة فعالية حول التعليم المتداخل بين التخصصات أقيمت خلال فصل دراسي كامل، وتقييم تصور الطلبة تجاه الأدوار التخصصية.

**طرق البحث:** أتم طلبة الصيدلة والتغذية البشرية في جامعة قطر فعالية حول التعليم المتداخل بين التخصصات لمدة ١٥ أسبوعا تتطلب أن يعمل الطلبة في مجموعات لإكمال مهمتين بعد فترة تمهيدية. جُمعت البيانات خلال اجتماعات بين الطلبة وأعضاء هيئة التدريس عن المهام ومجمل التجربة. كما تم تحديد التصورات تجاه الأدوار التخصصية بواسطة أخذ انطباعاتهم قبل وبعد المهمة.

**النتائج:** لاحظ ١٤ طالبا (٣٧٪) تغيرا لنظرتهم لدورهم التخصصي بالإضافة لدور متخصصي الرعاية الصحية الآخرين بواسطة البرنامج. ولاحظ ١٢ من ١٤ (٨٦٪) تغييرات في نظرتهم حول أدوار المهن المختلفة، في حين لاحظ ٢/٤ (١٤٪) تغيرا في نظرتهم للأدوار التخصصية الخاصة بهم. وأوضح ٣/١٤ (٢١٪) أن تغير نظرتهم للتعليم المتداخل بين التخصصات غير مرضية. هذه المفاهيم المتغيرة تركز إلى حد كبير على الأدوار المتخصصة للمهن الخاصة.

**الاستنتاجات:** نرى أنه من الممكن تطبيق تجربة الفصل الدراسي الكامل في التعليم المتداخل بين التخصصات في الشرق الأوسط. ويجب أن تركز الفعاليات المستقبلية والأبحاث مستقبلا على تعزيز التعاون والتواصل المتداخل بين التخصصات لتعزيز سلوك الطالب والإعداد النهائي للممارسة المهنية المتداخلة.

**الكلمات المفتاحية:** التعليم المتداخل بين التخصصات؛ الصيدلة؛ التغذية؛ التعليم الطبي

### Abstract

**Objectives:** Interprofessional education (IPE) is rapidly becoming integrated into university accreditation standards worldwide. However, the impact of IPE on student learning and practice is largely unknown in the Middle East. This report describes a semester-long IPE course-based activity and evaluates student perceptions towards professional roles.

**Methods:** Pharmacy and Human Nutrition students from Qatar University completed a 15-week IPE activity that required students to work in groups to complete two assignments after an introductory event. The data were collected during meetings with students and faculty about their overall experience and course assignments. Perceptions regarding professional roles were determined by a pre- and post-reflection questionnaire.

**Results:** After completion of the assignments, fourteen students (37%) noted changed perceptions of themselves, as well as of the other healthcare profession. Twelve of fourteen (86%) noted changes regarding perceptions of the roles of the other healthcare profession, while 2/14 (14%) noted changes regarding perception of their own professional roles. Three of fourteen (21%) reported that their changed perceptions towards IPE were unfavourable. These changed perceptions largely focused on specialised roles of the respective professions.

**Conclusions:** A semester-long IPE experience was deemed beneficial in a Middle Eastern context. Future events and research should focus on fostering collaboration and interprofessional communication to enhance

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student attitudes and eventual preparation for interprofessional practice.

**Keywords:** Interprofessional education; Medical education; Nutrition; Pharmacy

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## Introduction

Interprofessional education in the Middle East is rapidly developing. Reports from the region tend to describe one-time interactions or events that bring together different professions for shared learning experiences.<sup>1,2</sup> However, there is little knowledge of programmes that integrate interprofessional education across an entire course or semester. As interprofessional education evolves and becomes integrated into core curricular competencies, it is likely that these interactions will be essential for development and evaluation of student attitudes and skills within a collaborative environment.<sup>3</sup> Furthermore, interprofessional training has been shown to foster positive attitudes towards interprofessional communication, yet this has not been evaluated in a Middle Eastern context.<sup>4</sup>

The Interprofessional Education Committee at Qatar University follows a framework of four competencies, which include role clarification, interprofessional communication, patient and family centred care, and shared decision-making.<sup>5</sup> These competencies directly align with theoretical frameworks for interprofessional education<sup>6</sup> and encompass the knowledge and skills required of health sciences students upon graduation.

The goal of this project was to design and implement a semester-long interprofessional education activity that assessed each of the four adopted competencies. The primary objective of this report was to determine students' perceptions of their roles within a health care team and how perceptions changed after a semester-long, course-based interprofessional education initiative. A secondary objective was to determine how and to what extent students interact over the course of a semester.

## Materials and Methods

### Setting

Qatar is an affluent country located in the Arabic Gulf. Qatari citizens make up approximately 20% of the population.<sup>7</sup> The remaining residents come from a variety of world regions, such as South Asia, the Philippines, North Africa, and Arab countries. The country is currently undergoing large-scale education and health reforms, with a focus on achieving international accreditation standards. Both the Bachelor of Science in Pharmacy program and the Human Nutrition program at Qatar University have achieved North American accreditation designations. Only female students

are enrolled in these degree programs, as they are only offered to females on campus. Interprofessional education is integrated into both programmes and all students enrolled in this project had previous interprofessional education experiences.

### Activity overview

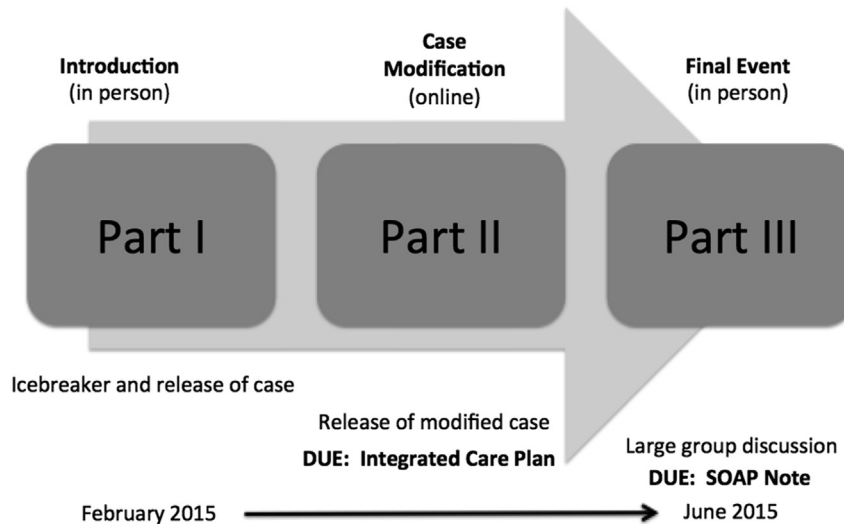
This exploratory, course-based, semester-long activity was modified from a previously reported interaction.<sup>1</sup> For this expanded project, 21 pharmacy students in their final (fourth) professional year of study and 17 human nutrition students in their third, of four, professional year of study were divided into six small groups. This was the total number of students in each programme year. Course instructors, two from each program, finalized an integrated patient case consisting of both pharmacy and nutrition-related therapeutic problems regarding cardiovascular disease. The patient case was peer reviewed by one external instructor from each professional programme who had experience working and teaching in interprofessional settings.

A timeline of the semester-long interaction is given in [Figure 1](#). Briefly, students and instructors met face-to-face in a large group setting for icebreakers and introduction of learning objectives, assessments, and timelines. Six weeks later, student groups submitted an integrated care plan, a plan in which students would work collaboratively, solving the patient case and associated drug and nutrition therapy problems. Students were then given an updated patient case containing new problems to be solved. Four weeks later, students submitted an integrated SOAP (Subjective Objective Assessment Plan) note in the form of health record documentation. The programme culminated with a final, face-to-face interaction for large group discussion.

### Determination of perceptions regarding professional roles

A questionnaire that was provided to the students during the initial interaction asked, "What does the term 'team-based care' mean to you? How does it work? What do you feel your role on a healthcare team is? What do you feel the role of a pharmacist or dietician is?" Students who participated on a voluntary basis were asked to write their responses and submit them to instructors. Responses were locked in an investigator's office until the final session. At this time, student responses were returned and students were asked to read their response and decide whether the response changed after the completion of the interprofessional education programme. Students were instructed to re-answer the question if their perceptions changed or simply write 'no change.' Responses were not anonymous, as it was desired for students to reflect on original responses and to determine how, if at all, perceptions changed after the programme.

Two investigators analysed responses for content and documentation of changes in perceptions. Descriptive statistics were used to determine the number of students with changed perceptions, unchanged perceptions, and whether changed perceptions were positive, negative, or undetermined.



**Figure 1:** Timeline of interprofessional education program.

### Student interaction

Student interactions were assessed using an interaction log. The log prompted students to describe the types of interactions they encountered (in-person, telephone, video conference, text messaging) and to approximate the amount of interaction that occurred within each type. Data pertaining to interaction logs were summarized descriptively.

### Results

A total of 38/38 (100%) students completed the activity and evaluation components. Qualitative data obtained from

students is given in [Table 1](#). Fourteen students (37%) noted changed perceptions regarding themselves or the other healthcare profession. Of these 14 students, eight (57%) were pharmacy students. Twelve (86%) noted changes regarding perceptions of the roles of the other healthcare profession, while two (14%) noted changes in perceptions of their own professional roles. No student noted changes regarding roles of both professions. Positive perceptions focused on increased knowledge of the specialized roles of the other healthcare profession. Three (8% of total, 21% of those with changed perceptions) reported negative changed perceptions and all three were nutrition students negatively reflecting on the role of pharmacists. All three

**Table 1: Student perceptions regarding their role and that of the other healthcare profession before and after programme completion.**

	Role of self	Role of other healthcare profession
Pharmacy students pre	<ul style="list-style-type: none"> <li>- Medication reconciliation</li> <li>- Pharmaceutical care</li> <li>- Health record documentation</li> <li>- Medication management</li> <li>- Medication distribution</li> <li>- Collaborative practice</li> <li>- Disease treatment</li> <li>- Patient education</li> <li>- Patient monitoring</li> <li>- Evidence-based medicine</li> </ul>	<ul style="list-style-type: none"> <li>- Diet planning</li> <li>- Obesity management</li> <li>- Patient assessment</li> <li>- Total parenteral nutrition</li> <li>- Lifestyle management</li> <li>- Pregnancy management</li> <li>- Managing food interactions</li> <li>- Referrals</li> <li>- Lab assessments</li> </ul>
Pharmacy students post	None noted	<ul style="list-style-type: none"> <li>- Specialized knowledge</li> <li>- Provision of nutrition information</li> <li>- Lifestyle management</li> <li>- Patient-centred care</li> <li>- Comprehensive care</li> </ul>
Nutrition students pre	<ul style="list-style-type: none"> <li>- Meal planning</li> <li>- Diet management</li> <li>- Collaborative practice</li> <li>- Nutrition assessments</li> <li>- Disease prevention</li> <li>- Disease treatment</li> <li>- Food interactions</li> <li>- Chronic disease management</li> <li>- Diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>- Drug information</li> <li>- Medication specialists</li> <li>- Medication distribution</li> </ul>
Nutrition students post	<ul style="list-style-type: none"> <li>- Disease prevention</li> </ul>	<ul style="list-style-type: none"> <li>- Shared roles</li> <li>- Drug—food interactions</li> <li>- Interference</li> </ul>

noted 'interference' by pharmacists. One of these students stated, "The pharmacy students think their concerns are more important and this inhibits overall care." The remaining 24 students noted 'no change' in perceptions.

Students interacted in multiple ways. All groups reported extensive email communication throughout the semester and also text messaging. Five of six groups documented an in-person interaction outside of scheduled activity time. One group reported solely email interaction. The three nutrition students reporting unfavourable perceptions did not meet in person with their professional colleagues.

## Discussion

This study found pharmacy and nutrition students in Qatar are aware of their professional roles in the fourth (pharmacy) and third (nutrition) years of study. Each profession believed to have had baseline knowledge of the other profession's role before completing a semester-long inter-professional education project. Both groups of students focused more on the specialized nature of each other's role after completion of the programme.

The results obtained align with previous findings.<sup>1</sup> Students were largely more focused on professional roles in isolation before the programme began. Examples of these include the use of words or phrases such as 'medication,' 'drug,' 'food,' or 'nutrition' within descriptors. However, a change was noted in perceptions including more broad and overlapping descriptors such as 'shared roles,' 'patient-centred care,' or 'comprehensive care.' Based on these findings, we believe longitudinal programmes can influence perceptions of students working within interprofessional settings.

Three nutrition students reflected negatively on the role of pharmacists after completing the programme. All three were in the same group and each person discussed 'interference' as a role of a pharmacist. We speculate that this particular group did not work collaboratively, resulting in this finding. This group did not communicate in person and only used email to complete the assignment. This could account for the negative perception, as research has shown in person interaction results in positive attitude changes.<sup>4</sup> Therefore, in person interaction should be encouraged to foster collaboration and engagement.

Our results prompt questions and hypotheses for future research. The finding related to unfavourable attitudes is interesting. It is possible that it may have been a chance finding, but cultural or social factors may also play a role. If the latter is true, learning strategies may need to be re-evaluated within a Middle Eastern environment to better suit and match the cultural values of students and their instructors. Secondly, we found mode of interaction to be diverse, with a large emphasis on text messaging. This is an important finding, as text messaging and smartphone applications are being used commonly in healthcare.<sup>8</sup> Evaluating strategies to incorporate these communication mechanisms into interprofessional education initiatives is required to ensure students are prepared to communicate in team environments.

The findings of this report must be considered in light of some limitations. First, our methodology to capture student

perceptions was exploratory in nature and did not allow for a comprehensive analysis of why perceptions did or did not change. Therefore, conclusions are speculative and should be further assessed in larger studies. Secondly, the sample size was small and only two professions were included. Future studies should include more students from differing professions.

## Conclusion

To conclude, our findings suggest that perceptions regarding professional roles of pharmacy and nutrition students in Qatar are capable of changing over the course of a semester-long interaction. Of those that change, perceptions are generally favourable with more emphasis on specialised roles of respective professions. This type of interaction provides a framework for developing integrated knowledge and skills between students, to prepare them for collaborative care practices upon graduation.

## Conflicts of interest

The authors have no conflict of interest to declare.

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## Author's contributions

KJW conceived and designed the study, conducted research, analysed results, and drafted the manuscript. TA conducted research, analysed results, and edited the final manuscript. AE contributed to the design of the project, and edited the final manuscript. MD contributed to the design of the project, collected data, and edited the final manuscript.

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