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Health professions students' attitude, perception, and readiness toward interprofessional education and practice in Oman



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المخلص

أهداف البحث: التعلم التفاعلي من خلال التعليم المهني المشترك يعزز الممارسة التعاونية. تهدف هذه الدراسة إلى تحديد المواقف والإدراك والاستعداد تجاه التعليم المهني المشترك والممارسة بين طلاب التخصصات الصحية الجامعيين العمانيين.

طرق البحث: شارك 327 طالب جامعي عماني من التخصصات الصحية المختلفة في هذه الدراسة المقطعية. تم جمع البيانات من خلال استبانة عبر الإنترنت من خلال أداتين موثقتين مسبقاً ومعتوتين: (1) إدراك الطلاب للتعليم السريري المهني المشترك المنقحة، (2) مقياس الجاهزية المعدل للتعليم المهني المشترك. تم تحليل البيانات باستخدام الإحصاء الوصفي والاستنتاجي.

النتائج: كان المتوسط العام لموقف الطلاب واستعدادهم تجاه التعليم السريري المهني المشترك 56.77 مع انحراف معياري 5.51. وكان متوسط الدرجة الإجمالية لإدراك الطلاب تجاه التعليم السريري المهني المشترك 41.42 مع انحراف معياري 4.56. كان المتوسط العام لدرجات المواقف والإدراك والاستعداد تجاه التعليم المهني المشترك أعلى بين طلاب الصيدلة مقارنة بالطلاب في التخصصات الصحية الأخرى رغم أنه لم يلاحظ أي فروق إحصائية.

الاستنتاجات: بشكل عام، كشفت الدراسة أن جميع طلاب التخصصات الصحية في عمان، بغض النظر عن التخصص، أظهروا موقفاً إيجابياً، وحالة عالية من الاستعداد، وإدراكاً إيجابياً تجاه التعليم والممارسة المهنية المشتركة. بالإضافة إلى ذلك، قدر جميع المهنيين الصحيين العمل الجماعي والتعاون كأساسيات.

الكلمات المفتاحية: التعليم المهني؛ الممارسة المهنية؛ المواقف؛ الإدراك؛ الاستعداد؛ طلاب التخصصات الصحية

Abstract

Objectives: Interactive learning through interprofessional education enhances collaborative practice. This study aims to determine the attitude, perception, and readiness of Omani undergraduate health professions students toward interprofessional education and practice.

Methods: A total of 327 Omani undergraduates across different health fields participated in this cross-sectional study. Data was gathered via an online-based survey by using two previously validated and reliable tools: 1) the Student Perceptions of Interprofessional Clinical Education-revised (SPICE-R2) and 2) the Readiness for Interprofessional Education Scale-modified. Data were analysed using descriptive and inferential statistics.

Results: The overall mean score of the students' attitude and readiness toward interprofessional education was 56.77 (SD = 5.51). The overall mean score of the students' perception toward interprofessional education was 41.42 (SD = 4.56). The overall mean attitude and readiness score and perception score were higher for the pharmacy students than for the rest of the students; however, no statistically significant difference was noted in the scores of attitude and readiness ($p > .05$), and perception ($p > .05$).

Conclusions: Overall, the study revealed that all the health professionals in Oman, irrespective of the profession, disclosed a favourable attitude, a high state of readiness, and a positive perception toward interprofessional education and practice. Furthermore, all the health professionals considered teamwork and collaboration to be essential for better quality care and practice.

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Introduction

A sustainable health care system relies heavily on competent health care professionals who work in teams collaboratively.¹ With the worldwide scarcity of trained health workforce getting the attention of health professional bodies, this has led to the scaling up of professional education.² Furthermore, the issues concerning the mismatch of competencies among health professionals, owing to professional silos and fragmented learning, addressed by the Lancet Commission report, have become matters of great concern.³ As a result, a call was welcomed globally to redesign health professions education by deploying knowledge, critical thinking, and ethical conduct to generate competent health team members who are sensitive toward the needs of patients.³ The concept of Interprofessional Education and Practice (IPEP) has gained momentum worldwide in the past few decades. According to World Health Organization (WHO),⁴ 'Interprofessional Education (IPE) occurs when two or more health professionals learn with, from, and about each other to improve collaboration and quality care' (p 13). WHO further directs a promising approach towards generating a workforce that is ready to collaborate at the workplace.⁴

The role of IPE has been discussed widely as being beneficial to patients, institutions, students, and educators.^{5,6} IPE improves patient outcomes and ensures optimal patient care when an efficient health care team provides care.⁶ However, existing professional silos³ prevent students from working, learning, and collaborating as a team.⁷ Besides this, each professional students' competency levels and learning requirements differ from that of the others, despite having shared the learning content.⁶ IPE is appreciated for generating a diverse range of skills and expertise that are essential for one to become a competent health workforce.⁷ It also enhances the role dynamics found among health professionals, encouraging them to work efficiently and communicate effectively with other health professionals.⁸

Implementation of IPE is an arduous task. Although many universities worldwide have acknowledged the broader understanding of IPE's benefits, the implementation mechanisms and approaches are different.⁶ Team thinking and acting, acquiring shared knowledge, sharing knowledge, and mutual understanding constituted the documented enablers to implement IPE. In contrast, the most reported obstacles were the lack of interconnection and coordination among two or more professions' curricula,⁹ lack of team culture, and unawareness of the roles and scope of other health professions.¹⁰ Nurses experienced

more obstacles to deliver coordinated care than other providers.⁹

Numerous aspects of implementation influence the IPEP. When IPE is introduced during the initial preparation of students, it is necessary that 'team care' is emphasized.¹¹ The structured curriculum of IPE boosts the collaborative learning prospects of students, thereby valuing the role of other professions in collaborative care.¹² It also enhances the critical thinking skills and communication found among health professionals.¹³ Several studies found health professionals across the programs in the Middle East regions^{11,13–16} and around the globe^{5,6,17–30} to show favourable attitude towards IPEP. A study conducted in Qatar highlighted the value of integrating IPE in the education of health professionals.¹³ Furthermore, undergraduate health care students at King Saud University KSA recorded high perception scores toward inter-professional learning.¹⁴ A recent pilot study of nursing students reported by Sultan Qaboos University College of Nursing, Oman showed students to have a moderately good insight on and high readiness for Interprofessional Education and Collaboration (IPEC).¹¹ Various studies concerning medical students¹⁴ and other professionals had similar results.^{17–19} When compared to first-year students, senior health professionals were more positive toward IPE.^{18,23} When compared to male students, female students showed more positive attitudes towards IPE.²⁴

To have better patient outcomes and quality health services in Oman, teamwork culture needs to be strengthened. While restructuring medical education and strengthening the professional training, infrastructure have been the Omans' priority since the ninth five-year plan (2016–2020), the IPE in Oman is still an evolving term for many. Gillian White³¹ has stressed the need to implement Lancet Commission's recommendation to link Oman's health profession education with the health systems. This recommendation impelled the Oman leaders to refine and reform the health professional education system through the competency-based curriculum. One of the core competencies was to provide transformative and interactive learning through IPE.^{31,32} In Oman, health professional colleges, especially the government sector, witnessed a radical upgrade from offering a nursing diploma to offering a Bachelor of Science in Nursing program, imbibing the program competencies and core values of interprofessional and interpersonal relationships. However, they were not integrated and measured explicitly, resulting in there still being a wait for a structured IPE curriculum and rigorous strategies to uphold collaborative values.³³ The latest pilot study publication¹¹ and a few previous literature studies related to IPE^{13,27–29} in Oman suggest that the present study settings have not yet been studied. Furthermore, a favourable attitude, perception, and readiness toward IPEP would serve as a driving force to initiate a desirable change in the curriculum of health professions education. Hence, this study examined and compared the attitude, perception, and readiness of health professionals across the discipline toward IPE and its practice.

Materials and Methods

Study setting

This study included health professions students from all the branches of Oman College of Health Sciences (OCHS) and the College of Medicine and Health Sciences (COMHS) at the National University of Science and Technology, located in North Batinah Branch (NBB), Oman. OCHS, a government institution with eight branches across Oman, mainly conducts training for Nurses. At the same time, its central branch in Muscat also has Pharmacy, Physiotherapy Medical Laboratory Science (MLS), and Health Information Management (HIM) programs. The number of students currently admitted every year in the central branch for the nursing program is around 150–165, whereas, in the regional branches, nursing students' intake ranges from 30 to 40. The pharmacy program has 40 to 53 students each year. Other allied health sciences programs such as MLS, Physiotherapy, and HIM have 50, 30, and 22 students each year. However, OCHS has no medical course. COMHS was included in the study as co-setting as one of the authors is a COMHS faculty. It was also convenient for all the authors to participate in data collection as they resided in Oman's NB region. The OCHS (NBB) has the second-highest intake of nursing students (70–75), which is close to the intake of COMHS. Both of them use only one government clinical facility. The average intake of medical students at COMHS is nearly 130.

Anatomy and Physiology, Research, Ethics, and Communication Skills are some of the courses that are taught as standard courses in all disciplines; however, the assigned credit hours vary based on the disciplines. At the central branch of OCHS, the training colleges are located in one campus; however, collaborative learning facilities are limited at the level of the region. Besides COMHS and OCHS, training for health care courses also takes place in the neighbouring universities located in the North Batinah region. Unfortunately, they were not included in the study.

Study design

A cross-sectional study design was employed for this research study.

Target population, sample size, and sampling technique

All the students from nursing, physiotherapy, radiography, health information management, and pharmacy and medicine, belonging to the settings mentioned above, were included in the study. The target population totalled 2070. Most of the target population (1306/2070) came from nursing OCHS, which offered nursing programs in its eight branches. The total study population from the other disciplines are: medical (291), pharmacy (141), medical laboratory sciences (143), radiography (91), physiotherapy (69), and HIM (33). Having used Solvin's formula with a 5% margin error, at a 95% confidence level, the total sample size was estimated to be 333. The sampling criteria applied to the health professions students enrolled in the second, third, and fourth years of Nursing, Pharmacy, and Allied Health Sciences undergraduate courses. However, students from pre-

clinical, clinical, and internship batches of medicine were also included in the study. Three hundred and twenty-seven students responded to the survey. The study adopted the convenient sampling technique.

Instruments

Data were collected using self-administered attitude³³ and perception³⁴ scales via an online survey conducted using Google survey forms. The researchers included sample characteristics such as age, gender, type of professional course enrolled, level of professional course enrolled, and prior exposure to the interprofessional education approaches within the initial part of the tool. The second part, Attitude towards Inter-Professional Education, adopted from Curran et al.,³³ intends to measure health professional students' attitudes towards interprofessional education. Curran and his colleagues³³ adopted the tool that Parsell and Bligh³⁵ initially prepared. It consisted of 15 items that considered only two components of the original scale: 'teamwork and collaboration' and 'professional identity'. The reported overall internal consistency of the tool was 0.91.³³ The third part of the tool investigated the perceptions towards IPE and Practice. The authors adopted the 'Student Perceptions of Interprofessional Clinical Education-Revised (SPICE-R2)' instrument from Zorek et al.³⁴ It consists of 10 items, with three subscales of 'interprofessional teams and team-based practice', 'roles and responsibilities for collaborative practice', and 'patient outcomes from collaborative practice'. The above instrument had acceptable overall reliability of 0.83.³⁴ The authors obtained permission from the respective authors to adopt the instruments in this study. There were no modifications made to the instruments. A Pilot study with 15 samples was conducted to know the feasibility of the study. The tool was administered in English. The students had no difficulty understanding any of the items.

Data collection methods

Once the ethical review approval was obtained, the student affairs coordinator was contacted. Following this, the students' emails were collected and the associate deans of each of the colleges were informed through the student affairs coordinator. A formal invitation to the participants was sent through email along with the survey link. The 'Participant Information Sheet', which consisted of a brief introduction to the researchers, the title, the study's purpose, the risks/benefits, volunteer participation, and the freedom to drop out of the study at any time, was emphasized. The students who responded to the survey were requested to give their consent to participate in the study. The anonymity and the confidentiality of the subjects were ensured throughout. Since the students were asked to enter their email IDs, the authors were able to verify the responses received through the given emails. The students were also given three reminders through emails, with a gap of 10 days in between. The data was collected from 25 September 2020 to 30 November 2020.

Data analysis

Statistical Package for Social Sciences (SPSS) version 23.0 was used to analyse the data. The demographic characteristics were described in terms of frequency and percentage. The overall mean scores of attitude, readiness and perception towards IPE and practice were compared across the professions. One-way ANOVA was used to find out the significant difference in the attitude and perception scores across the professions. ANOVA/T-test was also used to find out the difference in the attitude and perception of students based on the demographic variables. Besides, P-value <0.05 was the chosen level of significance.

Results

Sample distribution per their demographic characteristics

A total of 327 (out of 2070) students responded to the survey, with the response rate being 15.79%. The poor response rate could be due to the lack of interest shown by

the students toward participating in the survey. However, frequent reminders through emails enabled the authors to meet the nearest estimated sample size. A majority of the health professions students were from Nursing (212 [64.8%]), followed by allied health sciences (52 [15.9%]), medicine (47 [14.4%]), and pharmacy (16 [4.9%]). Nearly half (49.2% & 45%) of the students were in the 19–21 and 22–23 age groups, with the mean age being 21.32 (SD = 1.62). Female students, 259 (79.2%) outnumbered the male students, and 114 (34.9%) of the students were in the 4th year. A total of 219 (66.98%) students responded that they had no prior exposure to any of the IPE approaches during their training (Table 1). One-way ANOVA/T-test showed no significant difference in the attitude and readiness scale scores and the SPICE-R2 scores when the demographic variables were taken into consideration.

Data in Table 2 depict the attitude towards the IPE Scale calculated by Curran et al.³³ with regard to overall students and students across the health professions. The overall mean score of the students' attitude and readiness towards the IPEP scale was $M = 56.77$, with $SD = 5.51$. It is also evident in Table 2 that the pharmacy students had slightly

Table 1: Distribution of the sample as per the demographic characteristics N = 327.

Variable	Frequency	Percentage%	Attitude and readiness scores and perception (F-value)	P values
Age in years				
<19	4	1.2	.461	.710
19–21	161	49.24	2.257	.082
22–24	147	44.94		
>24	15	4.59		
Gender				
Male	68	20.8	2.561	.111
Female	259	79.2	.011	.917
Professions enrolled				
Medicine	47	14.4	.425	.735
Nursing	212	64.8	.758	.519
Pharmacy	16	4.9		
Allied health science	52	15.9		
Level of professional course enrolled				
2 nd year	78	23.85	.455	.810
3 rd year	82	25.08	.045	.999
4 th year	114	34.9		
Internship	31	9.48		
Pre-clinical	7	2.14		
Clinical	15	4.59		
Prior exposure to IPE activities				
Yes	108	22.03	2.144	.144
No	219	66.97	2.340	.127

Table 2: Overall mean and standard deviation of the attitude towards Inter-professional Education Scale^a across the professions.

Attitude towards IPE	Type of profession										F value	P-Value
	Medicine		Nursing		Pharmacy		Allied health course		Overall			
N=	47		212		16		52		327			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Overall	56.34	6.27	56.83	5.60	58.06	4.81	56.54	4.67	56.77	5.51	.425	.735

SD: Standard Deviation.

^a Curran et al.³³.

Table 3: Overall mean and standard deviation of the SPICE R2^a scores across the professions.

SPICE-R2	Type of profession										F value	P-Value
	Medical		Nursing		Pharmacy		Allied health sciences		Overall			
N=	47		212		16		52		327			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Overall SPICE-R2 scores	41.51	4.93	41.43	4.76	42.81	3.67	40.87	3.514	41.42	4.56	.758	.519

SD: Standard Deviation.

^a Zorek et al.³⁴.

higher overall mean attitude scores, followed by students from nursing, allied health sciences, and medicine, indicating that pharmacy students showed a greater positive inclination towards IPE than students from the other professions. However, this difference was not statistically significant ($P > .05$).

Table 3 depicts the perception towards IPE using the SPICE-R2 instrument³⁴ with regard to students overall and across the health professional courses. The overall mean score of students' perceptions towards IPE was $M = 41.42$, with $SD = 4.56$. Pharmacy students had slightly higher overall mean scores, followed by the students of medicine, nursing, and allied health sciences, indicating that the pharmacy students perceived the necessity for IPE at a slightly higher level than the students from the rest of the professions. However, this difference was not statistically significant ($P > .05$).

Discussion

This study aimed to determine and compare the attitude, readiness, and perception of health professions students from across the professions towards IPE and Practice in Oman health care settings. The authors used two tools: the modified Attitude Towards Interprofessional Education Scale adopted by Curran et al.³³ and the SPICE-R2 instrument.³⁴ Both the instruments elicited students having a positive attitude and perception towards IPEP. The study findings revealed that Omani undergraduate health professions students from across all the professional courses, namely medicine, nursing, pharmacy, and allied health courses such as radiography, physiotherapy, medical laboratory sciences, and health information management, were positive in their attitude, readiness, and perception toward IPE and Practice. The study results have concurred with the studies reported earlier, demonstrating the positive attitude^{1,19,21,24,28,30,36,37} and perception^{29,34,37} among health professions students towards IPE and Practice. These findings may persuade all the health professions schools to educate future practitioners to be 'collaborative—ready' to meet the health needs of the public. This study provides a broad and sound foundation for future practice and demands a change in how health professionals are prepared to practice their professions. Although the collaborative practice model has not been practised yet in the government hospital setting in Oman, the positive receptiveness from the health professions students under study towards IPE and Practice is quite evident. This could be because IPE and interpersonal communication have been addressed in the course syllabus as programs'

competencies. Students' awareness of IPE's positive outcomes and their positive inclination towards the respective attitude and perception demonstrate their readiness to accept change in the pedagogical strategy. Orientation towards the culture of teamwork and collaboration through curricular changes is warranted at this stage. Health professionals must realize that the group's collective knowledge far exceeds that of an individual. They should value the roles and expertise of colleagues and ensure that they communicate with them soundly.

Data were also subjected to further analysis to find out the difference in the attitude, readiness, and perception of students across the professions. Although the study results revealed slightly higher mean attitude, readiness, and perception scores of IPEP among Pharmacy students than the rest of the health professions students, no statistically significant difference was found in the students' attitude and readiness and perception toward IPE and Practice across the professions. The magnitude of the difference across the professions was minimal as the mean scores are approximately close to each other, which can be interpreted as all the health professions students being equally prepared to encounter IPE and Practice. This finding contradicted the findings of many studies, which showed higher attitude scores for nursing^{6,12,24,27} and medical students³³ than that for students from the other health professions. There was just one study that supported our findings, showing higher attitude scores to have been received by pharmacy and social work students.³³ As most of the study participants belonged to OCHS, their positive attitude and perception reflect the alignment of the curriculum competencies with the OCHS's vision and mission, with the desire being to have collaborative learning. Most health professionals valued teamwork and collaboration in the cases of both the tools, congruent with the findings of prior studies.^{15,35}

The finding of the respondent's demographic characteristics in the current study showed that most of the study participants were nursing students, primarily females, and were studying in the fourth year. Statistically, no significant difference was found in the attitude and perception scores across the professions. The findings were consistent with the findings of some of the previous studies.^{28,30,35} Even with nursing being a female-dominated profession, the study findings recorded no statistically significant difference based on demographic variables such as age, gender, profession enrolled, professional-level courses, and previous experience with the IPE approaches. The findings were inconsistent with the findings of many previous studies, which found statistically significant differences in the mean scores of attitude and

readiness and perception based on age,⁶ gender,³⁶ types of profession, level of the professional course,¹⁵ and prior exposure to IPE activities.¹

Oman is striving towards its vision of 2030 in enhancing health care. Interprofessional education and collaboration is the future vision of the higher education institutions in Oman. Graduate outcomes need to align with the core competency of the collaborative practice found within each of the programs. The teaching-learning strategies to facilitate collaborative learning and teamwork, such as team-based learning and simulation problem-based learning, need to be emphasized.

Generating graduates as a competent health workforce to strengthen the health care system is paramount. For this to happen, a formally structured IPE curriculum and related policies must be in place. In this study, all the students shared a positive attitude and viewpoint, inviting the Oman educators to initiate an IPE-driven curriculum regardless of their professions. Furthermore, students from all disciplines strongly perceived that team care is essential to achieve the highest quality care and patient outcomes.

Limitations of the study

First, since we adopted a cross-sectional study design, the attitude and perception change over time and the comparison of the subscales could not be studied. Only the overall attitude and perception were analysed in this study. Second, although there were overlapping components in the scales, both the instruments elicited a favourable attitude and perception. Third, although RIPLEs constitute the most widely used instrument, owing to the concerns around its relevance to the Oman setting and its length, a modified RIPLEs had to be used. As a result, the self-reported surveys might have not reflected the actual beliefs. This study is the first one to be conducted in the current study setting, there is a need for further studies investigating a broader group of students placed in multiple settings to yield better results.

Conclusion

Overall, the study revealed that all the health professionals in Oman, irrespective of the profession, disclosed a favourable attitude, high state of readiness, and positive perception towards IPE and Practice. All the health professionals valued teamwork and collaboration to be essential. Students' preparedness towards IPE would enable educators to make their health care institutions more open for the implementation and operation of the IPE curricula. IPE strives to pool expertise to serve patients by collaborating on tasks to meet the needs of patients better. To offer effective and efficient healthcare services to Omani patients and ensure that they have the best health outcomes, it is necessary to have health care advocacy. The introduction of IPE into the healthcare system has the potential to do this. Since there have been limited IPE-related studies reported in the current study setting, we call for the need to have further research on an extensive group of health professions students.

Abbreviations: OCHS, Oman College of Health Sciences; COMHS, College of Medicine and Health Sciences; NBB, North Batinah

Branch; HIM, Health Information Management; MLS, Medical Laboratory Sciences; SPSS, Statistical Package for Social Sciences; IPE, Interprofessional Education; IPEP, Interprofessional Education and Practice; IPEC, Interprofessional Education and Collaboration; WHO, World Health Organization; KSA, Kingdom of Saudi Arabia; SPICE-R, Student Perceptions of Interprofessional Clinical Education-Revised; SD, Standard Deviation.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

The Research and Ethical Review & Approval Committee (RERAC), Muscat, Oman (MOH/CSR/20/23798), and The Ethical and Biomedical Committee at the College of Medicine and Health Sciences in the National University of Science and Technology, North Batinah Governorate, Oman approved the study (NU/COMHS/EBC0012/2020).

Authors contributions

MPD conceptualized the study, collected the data, analysed and interpreted the data, prepared the initial manuscript, and did the final draft revision. FJ conceptualized the topic, searched and reviewed literature, collected the data, and critically reviewed the manuscript. AS drafted the methodology part of the manuscript, collected data, and revised the final draft. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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