Health profession readiness for interprofessional education in the Central Appalachia: a cross-sectional study [version 1; peer review: awaiting peer review]

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Abstract

Background: This study on interprofessional relationships took place in Eastern Kentucky analyzing optometry, medical and nursing students at the University of Pikeville. The Readiness for Interprofessional Learning Scale (RIPLS), regarding all three healthcare professional schools, was used to measure and determine students' views on working with one another. The purpose of the study was to examine similarities and differences in student attitudes across the three health professional programs within the same university.

Methods: Second year University of Pikeville (UPIKE) nursing, optometry, and medical students were given survey questions that followed the validated 19-item Readiness for Interprofessional Learning Scale (RIPLS).

Results: While the optometry and medical students demonstrated statistically similar attitudes, key statistical findings included that nursing students were more likely than medical students to believe that clinical problem solving can only be learned effectively with students/professionals from their own school/organization (p = 0.015); nursing students were more likely than medical students to welcome the opportunity to work on small group projects with other health and social care students/professionals (p = 0.018); and nursing students were more likely than both optometry and medical students to not be sure what their professional role will be/is (p=.005).

Conclusions: At the UPIKE, there is an observable difference between the attitudes toward IPE. Nursing students appeared to have a more positive attitude toward IPE than medical and optometry students, with the medical and optometry students having similar attitudes.

Keywords

Online questionnaire, interprofessional education, survey, IPEC
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Introduction
Health care has become an integrated environment, consisting of a kaleidoscope of professions, working together for the goal of quality care and improved health care outcomes for patients. The importance of establishing a common structure early in a medical professional student’s career is crucial in maintaining the integrity of this type of work environment. Interprofessional education (IPE) prepares health professional students with the skills for collaborating with various health professionals. Curriculum intervention through IPE training has had positive effects on the education of health professionals. Optometry students, at least in most of the US Schools, have IPE built into their curriculum during their third year. Medical school and nursing students have the option of joining a seminar to educate themselves further.

During the present time, when the world is facing a shortage of healthcare workers, global leaders in healthcare and policymakers are looking for innovative ideas and ways that can help solve the problem and develop programs to bolster the global health workforce. A key aspect of any solution in sight for solving such personnel and workforce issue is by developing collaboration across the various disciplines in healthcare. At present, patient care is a multidisciplinary approach with various teams focused on providing patient needs and improving quality of life during serious medical conditions. In any healthcare setup and at any given time, teams of doctors, social workers, nurses, and paramedics work in collaboration to provide medical and logistical support to everyone involved in patient care.

The delivery of effective and high-quality patient care tends to be demanding, requiring a good understanding between the team members and is a complex activity. But as seen in various situations, the understanding and collaboration between several healthcare givers can be difficult and problematic. IPE is a way to improve understanding and teamwork. It is not a new concept but has been known for over 50 years and has been endorsed by the World Health Organization for more than 20 years. IPE is defined as educational experiences in which members or students of two or more professions learn with, from, and about each other to improve collaboration and the quality of care and services. In academics or universities, IPE is realized when students from two or multiple professional fields come together and learn from, about, and with each other collaboratively.

IPE has the potential to improve health outcomes, could be a powerful tool to help students in professional courses to understand their importance on the team, and to provide them with their professional identity. At the same time, it could help them understand the importance of the roles others play within the healthcare provider’s team.

At present, IPE education is extremely single-tracked with emphasis on professional courses and making sure that students learn and understand the importance of one’s course in isolation, while completely neglecting the importance and requirement of other professionals. Today, patients have complex health issues and typically require more than one healthcare provider to understand and address the full spectrum of their disease condition and treatment modalities. The delivery of such patient care occurs in compartmentalized silos and with many misunderstandings and significant miscommunication between different team members. With so much history, IPE is still a style of education that has remained obsolete, underutilized, and often misunderstood.

IPE can provide a practical framework for learning and clinical practice. This can help bridge the gap between several individuals by creating an environment where the primary focus is on patient care. Early implementation of IPE is important and may prevent the development of negative interprofessional attitudes.

Our school, the University of Pikeville, is located in central Appalachia, USA. It has the distinction of being the only school across a very large geographical area that has the combination of the three health professional schools that emphasize primary care, namely Osteopathic Medicine, Optometry, and Nursing. No such study has taken place either in the geographical area of our school or in the combination of medical, optometry, and nursing schools. Particularly considering the shift of optometry into primary care ophthalmology, the underlying trends about an interprofessional collaboration among the future health professionals are unknown. The purpose of this study was to assess and analyze the student’s perception of interprofessional importance and respect for learners studying various professional courses. Thus, we evaluated how different medical professional school students view the importance and requirement of interprofessional care.

Methods
Setting
The study was designed and implemented at the University of Pikeville (UPIKE), due to the presence of three health professional colleges, the Kentucky College of Optometry (KYCO), the Kentucky College of Osteopathic Medicine (KYCOM), and the Elliot School of Nursing (ESN). UPIKE is unique in the greater Appalachian geographical area and
the Commonwealth of Kentucky for having the combination of these three different professional schools of optometry, medicine and nursing.

Study design
This is a cross-sectional descriptive study that was conducted in the spring of 2019 by using a survey questionnaire which was provided to students over a semester at the three different professional schools.

Participants
The students recruited were all second year students enrolled in optometry, osteopathic, and the nursing programs. There were no other inclusion or exclusion criteria used for the selection of the sample students for this research.

The study was extended to a total of 240 students across the three schools and was administered online via surveyhero.com; a link to the survey was sent to the student’s school email address. Due diligence was exercised to prevent any duplication of responses and any responder can fill the form only once by clicking the link provided. The surveys were sent to students with adequate time to respond at baseline with two subsequent weekly reminders.

Data collection
The survey questions were developed based on the KYCO objectives for IPE and included a few open-ended questions and a few questions involving the Likert scale for answering. Such questionnaires are used to explore the use of IPE as a strategy to reform health professional education to become more collaborative.5-6

The survey questions followed the validated 19-item Readiness for Interprofessional Learning Scale (RIPLS).7,8 The questions were designed to study the perceptions of students regarding the knowledge and respect about students from other professional courses across various topics. The questions investigated the student’s perception about how they feel about interprofessional learning, is teamwork essential, how will clinical problem solving get better with cross-professional collaboration and help them overcome their course limitations. The survey required a maximum of 5 to 10 minutes to complete. A copy of the questionnaire can be found in the Extended data.13

Data analysis
The statistical software SPSS v 26 was used to analyze the data from the study. The results were expressed as mean and standard deviation and any differences were considered as significant if the p-value for that determinant was greater than 0.05. Analysis of variance was used as the statistical test.

Ethical considerations
The study was approved by the institutional review board (IRB# IRB000009652IRB) of the University of Pikeville. Participation (i.e., responding to the request) was voluntary; completing the questionnaire was taken as consent to participate. The data were collected and processed anonymously, and consent was taken from the students to use their data for analysis.

Results
The survey for this study was administered to 240 students over a semester, of which 103 returned their response. In total, 61% of the total responders were female students with 38% being male students; 1% did not identify gender (Table 1).

Based on the data analyzed following the survey (Table 2 and Figure 1), the nursing students were more likely than medical students to believe that clinical problem solving can only be learned effectively with students/professionals from their own school/organization (p = 0.015). The nursing students were also more likely than medical students to welcome the opportunity to work on small group projects with other health and social care students/professionals (p = 0.018) compared to optometry or osteopathic medical students. Also, the nursing students were more likely than both optometry and medical students to not be sure what their professional role will be/is (p = 0.005).

Discussion
The strength of this work is that it is the first study performed in our area attempting to measure the perceptions of IPE among health professional students. The survey measured and compared the attitudes of divergent healthcare professional students. Because IPE is influential to provide patients with the best care, the end goal is to provide knowledge about the attitudes of our professional medical students and to foster more research in this area.

In this study, the optometry and medical students did not demonstrate statistical differences in their attitudes toward IPE, while the nursing students had more positive attitudes. The statistical data supporting that fact could be influenced by the
circumstance that nurses coordinate with physicians and other healthcare professionals more than the other professions surveyed within this study. It is noteworthy that optometry students and medical students shared similar results, although only the optometry students have IPE classes built into their curriculum. Nurses have diverse, important duties that allow them to work in different healthcare fields, and this, perhaps, explains similar findings in the literature that supports the nursing school program’s higher IPE positive attitudes.6

Similar studies involving Physician Assistant professional school students9 indicated very positive attitudes toward IPE. Interestingly enough, these attitudes appear to decline between matriculation and graduation; such findings have also been reported among undergraduate students as well.6 It is important; therefore, that the strengthening of IPE in the health professional school’s curricula will serve to make full use of the students’ initial positive attitudes and focus on skill development for IPE competencies. A well-placed IPE curriculum, particularly during clinical training, can be associated with greater receptivity toward collaborative care.10,11

We hope that the findings of this study will foster the determination of academic institutions to strengthen IPE in their curricula by instituting formal interprofessional educational activities that involve students across all programs for health professionals. The incorporation of IPE into the core curricula can be implemented at the singular level of each student and within the clinical setting as a whole, relying on faculty activities and coursework and collective activities at the school level exert influence in the health education and practice system.3,12 The valuable collaborative learning opportunities will enhance respect for other professionals and insight into the value of IPE in healthcare delivery.

### Table 1. Study respondent population demographics.

| Gender       | n  | %  |
|--------------|----|----|
| Male         | 39 | 38 |
| Female       | 63 | 61 |
| Non identifying | 1 | 1  |
| Course       | n |    |
| Optometry    | 56 | 54 |
| Medicine     | 36 | 35 |
| Nursing      | 11 | 11 |

### Table 2. Test sentence answer results mean (standard deviation) across the three scores. The maximum score was 10.

| Sentence                                                                 | Optometry Student | Medical Student | Nursing Student | Total Score | p-value |
|--------------------------------------------------------------------------|-------------------|-----------------|-----------------|-------------|---------|
| Communication skills should be learned with other health and social care professionals. | 8.3 (1.7)          | 8.7 (2.1)       | 9.3 (1.3)       | 8.6 (1.8)   | 0.240   |
| Learning with other students/professionals will make me a more effective member of a health and social care team. | 7.9 (1.8)          | 7.8 (2.8)       | 8.9 (1.4)       | 8.0 (2.2)   | 0.306   |
| I am not sure what my professional role will be/is.                      | 1.5 (2.3)          | 1.6 (2.7)       | 4.5 (4.4)       | 1.9 (2.8)   | 0.003   |
| I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health and social care students/professionals. | 7.3 (2.4)          | 6.9 (2.9)       | 9.4 (1.0)       | 7.3 (2.6)   | 0.023   |
| For small-group learning to work, students/professionals need to respect and trust each other. | 8.6 (1.6)          | 9.1 (1.9)       | 9.0 (1.5)       | 8.9 (1.7)   | 0.389   |
Conclusion
This study revealed that, at UPIKE, nursing students had the best attitudes toward IPE compared to optometry and medical students. Nursing students also differed in their attitudes about clinical education involving interprofessional education techniques compared to optometry and medical school professional students.

This study showed that there is room for improvement for all UPIKE healthcare professional students. Because the data showed a discrepancy between professional students, another study discerning if the IPE course taught within the schools could have influenced this phenomenon will be conducted over the next couple of years at UPIKE.

Data availability
Underlying data
DANS: Interprofessional study questionnaire data, https://doi.org/10.17026/dans-xe2-tufn.13

Extended data
DANS: Interprofessional study questionnaire data, https://doi.org/10.17026/dans-xe2-tufn.13

This project contains the following extended data:

- IPE study questions

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).

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