Evaluation of team communication in an interprofessional inpatient transition of care simulation

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Abstract

Background: Interprofessional education (IPE) provides unique opportunities for students to better understand their roles, roles of other healthcare professionals, and prepare for teamwork for patient benefit. Interprofessional team education is recognized as a key element in the 2016 ACPE standards. Objective: Assess student self-perceived competence in four IPEC domains after an inpatient simulation activity. Methods: Pre/post-test design used the Interprofessional Education Collaborative Competency Survey. The activity included medical, nursing, social work, and pharmacy students working in healthcare teams to develop collaborative treatment plans for simulated patients with altered mental status. Results: Ninety-seven health profession students completed the activity, while 49 second-year (P2) student pharmacists participated in the study. All completed a pre-test and 47/49 (96%) completed a post-test. At pre-test, students ranked themselves highest in abilities to respect patient privacy (100% strongly agree) and acting with honesty and integrity in relationships (100% strongly agree). They reported lower ability in describing team development process. At post-test, significant increases were seen in using appropriate or respectful language (p < .002) and respect (p = .49), though decreases were seen in using appropriate or respectful language (p < .02). Conclusion: Significant differences in student perceptions of ethics and communication were observed after participation in a transition of care inpatient IPE simulation.

1. Introduction

The World Health Organization defines interprofessional education (IPE) as an act in which “students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.” Skills in teamwork and communication have been increasingly valued by accreditation bodies, including the Accreditation Council on Pharmacy Education and the Commission on Collegiate Nursing Education. The National Academy of Medicine also recognizes the value of IPE for learners and recommends evaluating the impact of IPE on collaborative practice within teams.

IPE provides learning opportunities for students to better understand their roles, the roles of other healthcare professionals, and to prepare to work on a team for the benefit of the patient. The Interprofessional Education Collaborative (IPEC) maps activities to four core competencies: values/ethics, roles/responsibilities, interprofessional communication, and teams/teamwork. IPE initiatives also provide an environment that is conducive to learning and facilitates effective communication between healthcare professionals. Moreover, participation in IPE activities provides health profession students with unique learning opportunities to further develop important communication skills such as listening, respecting the opinions of others and conflict resolution.

This project utilized an IPE activity that encouraged face to face interaction and communication during an inpatient shift-change scenario in which student pharmacists were required to communicate with medical, nursing and social work students. Hand-offs such as shift-changes were chosen for this activity as they are a significant risk factor for medical errors and patient safety events. Poor communication contributes to up to two-thirds of sentinel events, and of those, over half are related specifically to poor transition of patient care between providers. The IPE activity was designed as a teamwork experience to provide student pharmacists the opportunity to participate in an experiential educational activity with other health profession students to develop a more comprehensive approach to patient care. The objective of this project was to assess student pharmacists self-perceived competence in all four IPE domains after an inpatient simulation activity.

2. Methods

This project utilized a cross-sectional, self-administered paper survey, which was implemented at one school of pharmacy during September...
A total of 97 health profession students completed the activity, while 49 second-year (P2) student pharmacists participated in the study. Response rates were very high - 49/49 (100%) with all P2 students completing the pre-test and 47/49 (96%) completed the post-test. Key results are presented below; all results are available in Appendix A.

At pre-test, students ranked themselves highest in their abilities to respect the privacy of patients (100% strongly agreed, median = 5) and to act with honesty and integrity in relationships (100% strongly agreed, median = 5). The lowest pre-test scores were in describing the process of team development (10% strongly agreed, median 3.5). Table 1 describes the highest overall ratings in similar areas between pre- and post-test.

At post-test, significant differences were seen in the areas of managing ethical dilemmas (p < .002) and using appropriate or respectful language (p < .02). Additionally, student perceptions regarding the statement that describes respect of the unique value of other health professions also significantly differed before and after the intervention (p = .049). The direction of change for the areas of respect and ethics was positive with an increase in both the percentage of students who agreed with the statement and the level of their agreement. The direction of change for the area of language was a decrease from pre-test to post-test. Results with the most substantial changes can be seen in Fig. 1.

Of the four domains of the IPEC-CS, two significant findings were identified in the Values and Ethics domain and one significant finding was identified in the Interprofessional Communication domain. There were no significant differences within the Roles and Responsibilities Domain or in the Teams and Teamwork Domain. Other responses were not significantly different (Appendix A).

4. Discussion

In order to graduate as collaboration-ready practitioners, students require opportunities to practice communication and teamwork skills. Simulation allows students to perform these skills in an environment with patient populations and disease states that remain consistent. The transition of care inpatient IPE simulation evaluated in this study encouraged face to face interaction and communication in a shift-change scenario in which student pharmacists communicated with medical, nursing, and social work students. Though simulations are used frequently in health professions education, our study is noteworthy in that it focuses on hand-offs in the acute care setting.

A study by Baumgartner and colleagues described implementation of acute care simulations. These simulations had strong inter-rater reliability and predictive validity. The authors recommended that other researchers develop acute care simulations and evaluate them with a validated assessment, both of which were a focus in this study.

Student pharmacists’ self-perceived competence in each of the four IPEC domains after an inpatient simulation activity was assessed. As the activity focused on communication and teamwork, we anticipated a change in responses in these areas. At post-test, significant increases for student perceptions of ethics and respect for other professions were observed. Students consistently ranked their abilities highly in respecting patient privacy. A significant difference was observed for the IPEC competency of values and ethics: managing “ethical dilemmas specific to interprofessional patient centered care situations.” Though there are evaluative studies of IPE activities using comprehensive assessments, we were unable to identify any that specifically assess ethics in IPE activities with student pharmacists. A recent study involving nursing, midwifery, and law students received positive feedback from students and demonstrated an increase in knowledge and engagement in the area of healthcare ethics. Though the cases did not specifically focus on ethics, reflection on the roles of value and ethics in a healthcare team scenario may have contributed to these results. Significant

| Table 1: IPEC Survey Areas with Highest Ranking of Responses. |
|---------------------------------------------------------------|
| **IPEC Item Focus Area** | **Median Response (1–5)** | **Strongly Agree + Agree (%)** |
|---------------------------|--------------------------|-------------------------------|
| Pre-test                  |                          |                               |
| Privacy/Confidentiality   | 5                        | 98.0                          |
| Honesty/Integrity         | 5                        | 98.0                          |
| Patient-Centered Care     | 4                        | 95.9                          |
| Post-test                 |                          |                               |
| Privacy/Confidentiality   | 5                        | 97.9                          |
| Honesty/Integrity         | 5                        | 95.7                          |
| Respect                   | 4                        | 95.7                          |
increases in student ability to manage ethical situations will be beneficial for subsequent performance on an interdisciplinary team. Students also ranked their ability to respect the unique role of other health professions significantly higher after this experience; “Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions”. An increase in the area of respecting team members is consistent with a recent study by Southall, et al. After a simulated IPE experience, students reported significantly higher agreement that respect was needed in order for small groups of students to work well together.12 By having this IPE experience, students may have learned more about the role of other health professions and as such, their level of respect increased. Increases in mutual respect among health profession students have been identified as benefits of IPE experiences in other settings.13

It is unclear why the ranking of the statement on language decreased from pre-test to post-test. It is possible that the simulation experience may have led to student self-reflection in their communication skills, since it was part of the core pharmacy communication course. Teams may also have differed in the amount of conflict that occurred, so the results may be heterogeneous. Language may be a challenging skill to address in IPE activities. A similar study also found that language was the primary area that did not significantly change after an IPE experience.14

5. Limitations

This study utilized a convenience sample of health profession students, which limits the external generalizability. This study only evaluated second-year student pharmacist perceptions of their abilities in each IPE domain after two different inpatient simulation activities. Data from other health profession students were not collected, which limits the evaluation of this activity regarding its usefulness and applicability. This was P2 students first time participating in an IPE activity of this nature. Hence, their responses may have been influenced by their level of exposure to IPE activities. Interactions within a team on a subsequent activity may result in different behavior and attitudes than those reflected in self-perceived abilities. Student participants did not have the opportunity to collaborate on other disease states. There is the potential for social desirability bias in these data since this activity was evaluated during a required pharmacy course.

The generalizability of the study results is limited since all interprofessional healthcare team participants were students at one College of Health Sciences. The IPE activity was of short duration. Students engaging in IPE activities for longer durations may have had different perspectives regarding their abilities in each IPE domain.

6. Conclusion

Significant differences in student pharmacist perception of ethics and communication were observed after participation in a transition of care inpatient IPE simulation. The results of this study provide a framework for additional quantitative research in IPE activities among student pharmacists and other health profession students. Future work is needed to further validate and extend these findings.

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Declaration of Competing Interest

The authors have no conflicts of interest to report.

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Appendix A. Interprofessional Education Collaborative (IPEC) Competency Survey Results

Using a 5 point scale, (1 = strongly disagree and 5 = strongly agree), please rate the items based on your educational experience. I am able to...

| Item                                                                 | Pre Median, (Range) | Post Median, (Range) | P-value (t-test) |
|----------------------------------------------------------------------|---------------------|----------------------|------------------|
| **Values and Ethics Domain**                                         |                     |                      |                  |
| Place the interests of patients at the center of interprofessional healthcare delivery | 4, (3–5)            | 4, (2–5)             | 0.7866           |
| Respect the privacy of patients while maintaining confidentiality in the delivery of team-based care | 5, (3–5)            | 5, (3–5)             | 0.9969           |
| Embrace the diversity that characterizes patients and the health care team | 4, (3–5)            | 4, (2–5)             | 0.3143           |
| Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions. | 4, (3–5)            | 4, (3–5)             | 0.0496†          |
| **Roles and Responsibilities Domain**                                |                     |                      |                  |
| Work in cooperation with those who receive care and those who provide support or care | 4, (3–5)            | 4, (2–5)             | 0.0846           |
| Develop a trusting relationship with patients, families, and other team members | 4, (3–5)            | 4, (3–5)             | 0.4793           |
| Demonstrate high standards of ethical conduct and quality of care in my contributions to team-based care | 4, (3–5)            | 4, (3–5)             | 0.5494           |
| Manage ethical dilemmas specific to interprofessional patient centered care situations. | 4, (2–5)            | 4, (3–5)             | 0.0024†          |
| Act with honesty and integrity in relationships with patients, families, and other team members. | 5, (3–5)            | 5, (3–5)             | 0.5830           |
| Maintain competence in my own profession appropriate to my scope of practice or level or training. | 4, (2–5)            | 4, (1–5)             | 0.1991           |
| **Interprofessional Communication Domain**                           |                     |                      |                  |
| Communicate my roles and responsibilities clearly to patients, families, and other professionals. | 4, (2–5)            | 4, (1–5)             | 0.5132           |
| Recognize my limitations in skills, knowledge, and abilities.        | 4, (2–5)            | 4, (1–5)             | 0.5757           |
| **Interprofessional Practice Domain**                                |                     |                      |                  |
| Manage complex cases that require interprofessional collaboration and team-based approaches | 4, (3–5)            | 4, (1–5)             | 0.0870           |
| Recognize the role of other health professionals in supporting patient care | 4, (2–5)            | 4, (1–5)             | 0.1115           |
| Manage ethical dilemmas specific to interprofessional patient centered care situations. | 4, (2–5)            | 4, (1–5)             | 0.4671           |
| Communicate with team members to clarify each member's responsibility in executing components of a treatment plan or public health intervention. | 4, (2–5)            | 4, (1–5)             | 0.9252           |
| **Interprofessional Practice and Relationships Domain**              |                     |                      |                  |
| Establish interprofessional relationships to improve care and advance learning. | 4, (3–5)            | 4, (1–5)             | 0.4570           |
| Engage in continuous professional and interprofessional development to enhance team performance. | 4, (3–5)            | 4, (1–5)             | 0.5287           |
| Use unique and complementary abilities of all members of the team to optimize patient care. | 4, (3–5)            | 4, (1–5)             | 0.6282           |
| **Interprofessional Practice and Education Domain**                 |                     |                      |                  |
| Choose effective communication tools and techniques to facilitate discussions and interactions that enhance team function. | 4, (3–5)            | 4, (1–5)             | 0.9836           |
| Communicate information with patients, families, and healthcare team members in a form that is understandable. | 4, (3–5)            | 4, (1–5)             | 0.5138           |
| Avoid discipline-specific terminology when possible.                | 4, (2–5)            | 4, (1–5)             | 0.3153           |
| Express my knowledge and opinions to team members involved in patient care with clarity and respect. | 4, (2–5)            | 4, (1–5)             | 0.5097           |
| **Interprofessional Practice and Teamwork Domain**                 |                     |                      |                  |
| Perform effectively on teams and in different team roles in a variety of settings. | 4, (3–5)            | 4, (1–5)             | 0.7026           |

† p < .05 for the difference between the pre- and post-survey responses.

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