INTERPROFESSIONAL EDUCATION: USING SIMULATION TO TEACH ERROR DISCLOSURE

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BACKGROUND

Widespread patient error in US hospitals associated with substantial preventable mortality and morbidity, as well as major quality issues, has revealed the inadequacies in costly systems of healthcare delivery (IOM, 2000, 2003). Health professionals often fear disclosing errors to patients due to a myriad of legal, professional, and administrative constraints and consequences (Robinson & Hughes, 2008). While much of the error disclosure training literature focuses on medical students and physicians, very little is reported on undergraduate and/or pre-licensure health professionals (Noland & Rickles, 2009; Thompson & Tilden, 2009). Developing effective collaborative, health professional teams and redesigned systems is critical to achieving care that is patient-centered, safer, timelier, and more effective, efficient, and equitable (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). Expecting health professionals to work together if they are not educated together proves challenging. Interprofessional education in the health professions is essential to building teamwork, enhancing communication among providers and patients, and ensuring patient safety (Brock et al., 2013).

PURPOSE

Demonstrate outcomes of interprofessional education to teach medical error disclosure to pre-licensure nursing, pharmacy, and dental medicine students using a simulation experience.

DESIGN

Using a pre-test/post-test design, pre-licensure students from three separate disciplines of nursing, pharmacy, and dental medicine, engaged in a simulated medical error disclosure simulation experience where the health professional students disclosed a significant medication error to theater students who played the role of the injured patient's family member.

SUBJECTS

One hundred ninety-two students participatns provided completed assessment that were included in the analysis. Three were 69 senior level nursing students in their critical care nursing course in the final semester of study; 76 third-year clinical pharmacy students, and 47 third year dental medicine students.

PROCEDURE

Following IRB approval, faculty from all three disciplines were trained in both inter-professional and error disclosure content. A pilot study using undergraduate nursing students was conducted to test the overall procedure and instruments.
One week prior to the simulation experience, students from all three disciplines were provided links to an online discussion and a power point describing error disclosure focusing on the guidelines for successful error disclosure using a multi-disciplinary approach.
Students were randomly assigned to large groups (a total of 16 groups) and then smaller cohorts (20-25 students) within those groups to facilitate moving through four rooms that were running simultaneous simulations during an 8-hour period. To facilitate team-building, all students engaged in an ice-breaker exercise for 20 minutes prior to beginning the simulation.
Each cohort of 20-25 students was composed of three multi-disciplinary teams (5-8 students) of nursing, pharmacy, and dental medicine students. The teams were provided a packet of background information of the scenario and a short handout to guide them in the principles of successful error disclosure. The teams were encouraged to discuss the scenario and plan their roles in the simulation for 30 minutes. Trained faculty were available as room facilitators to answer questions and monitor team behavior.
Each multi-disciplinary team participated in one simulation experience, lasting about five minutes. All teams worked from the same medical error scenario, but each simulation within the cohort differed based on the behavior of the patient's family member (theater student) who was directed to respond as either a neutral response, very sad but cooperative response, or a very angry, hostile response.
All students in the 20-25 student cohort observed the teams in each simulation. The experience was debriefed with the error disclosure team following each simulation. Following the third simulation, an 20 minute overall debriefing occurred.

INSTRUMENTS

Two instruments were developed by the authors to assess knowledge and attitude of student participants pre- and post- the IPE simulation experience. The Knowledge Assessment Tool consisted of 10 items with 4 response options, scored as correct/incorrect. A KR20 reliability of R= The Attitude Assessment Tool was an 11 item, Likert scale response ranging from 1=Strongly Disagree to 5= Strongly Agree was developed from questions in the literature to assess student's attitudes and beliefs towards disclosing medical errors to patients. Chronbach's alpha reliability was calculated on the pretest (r=.67) and post-test administrations (r=.77).

RESULTS

Knowledge Assessment. Paired sample t-tests were conducted on scores from both the knowledge and attitude tools to obtain mean pre-test and post-test comparison scores for each of the three groups: Dental medicine, nursing and pharmacy. Each group demonstrated a significantly higher post test score on the knowledge assessment tool. A three group ANOVA revealed the overall mean knowledge assessment scores pre and post differed significantly between students by discipline. Nursing students scored significantly lower than dental students on the knowledge assessment pre-test (p=.032) and lower than pharmacy students on the post–test (p=.000).
Attitude Assessment. A Cronbach's alpha reliability on the Attitude Assessment tool demonstrated a coefficient r= .67 on the pretest and r=.77 on the post-test. A three group ANOVA revealed significant differences on both pre- and post-test scores for all disciplines. A post hoc comparison revealed the dental students scores were significantly lower than the nursing and pharmacy student's attitude scores.

Knowledge Assessment Results

Profession	Number of Participants	Pre-Assessment	SD	Post-Assessment	SD	p-value
Dental	47	72.98	13.82	82.98	8.83	0.000
Nursing	69	66.67	10.94	78.70	11.62	0.001
Pharmacy	76	69.34	13.98	85.13	9.16	0.000
TOTAL	192	69.27	13.08	82.29	10.38	Pre (0.038)* Post (0.001)†

Attitude Assessment Results

Profession	Number of Participants	Pre-Assessment	SD	Post-Assessment	SD	p-value
Dental	47	42.32	3.50	44.68	4.62	0.000
Nursing	69	45.30	6.78	49.12	3.11	0.000
Pharmacy	76	45.07	5.26	47.82	5.67	0.001
TOTAL	192	44.48	5.63	47.52	4.91	Pre (0.009)* Post (0.000)†

LIMITATIONS & CONCLUSIONS

Limitations of the study include the small sample of convenience from a single university, limiting generalizability of the results. However, as a pilot IPE project, we were able to develop and test two instruments to measure knowledge and attitudes as described by the IPEC to assess learning outcomes from a simulation in medical error disclosure for three pre-professional disciplines. Significant differences in student's knowledge pre and post was found. Variation of student scores by discipline could be explained by the exposure of student-patient interactions in the post-graduate pharmacy/dental medicine students, the variation of preparation for the simulation experience and the perceived fidelity of the case by the various disciplines. Plans to integrate the IPE Medical Error simulation into all three curricula are underway. With continued evaluation of IPEC outcomes.