Medical Students' Self-Ratings of Interprofessionalism Knowledge & Performance Before & After Simulation-Based Education

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Introduction

- Assessment of the clinical performance of health professions students is complex and prone to subjectivity of evaluators.
- A variety of grading methods are used, including standardized written examinations, oral examinations, assessment of patient interactions, guided observation of clinical procedural skills and peer and self-assessments.
- The use of simulation-based education (SBE) as a teaching and assessment method within health professions training programs has rapidly expanded during the past decade.[1]
- A critical component of SBE is guided reflection on the part of the learner, resulting in gradually increasing confidence in one's own skill set. A growing body of research evidence has documented the utility of SBE for educating health care professionals on a wide variety of topics.[2]

Study Objective

The purpose of our study was to analyze the impact of simulation-based education (SBE) in training second year medical students' on selected aspects of Interprofessionalism knowledge and teamwork skills.

Materials and Methods

- A total of 166 M2 (second year) medical students self-assessed their Inter-professionalism knowledge and team leadership skills before and after a simulation-based educational experience, then provided feedback.
- Students completed separate but related exercises featuring clinical patient care scenarios pertaining to trauma and geriatric/nursing home care. In both exercises, students were observed by faculty members and each other (peers), and rotated between learning stations approximately every 45 minutes until all students completed all stations. A debriefing session followed.
- A 5-point Likert scale (1=very low to 5=very high) questionnaire asked participants to self-rate confidence and skills before and after the SBE experience.
- Data analyses were performed using the ANOVA procedure for item means ($p \leq .05$) and Pearson Correlation procedures ($p \leq .05$ or .01).

Pre- and Post-Test Survey Items

Please assess the change in your knowledge/skill level pertaining to the subject matter below:
Information exchange: delivering information to and from the right sources at the right time
Communication delivery: ensure messages are understood as intended
Supporting behavior: actions taken that enable team members to effectively compensate for one another
Team Leadership/Followship: behaviors that help to ensure the team moves forward in a positive and united direction
Identify own strengths and areas for development as a functional health care team member

Results: Students' Self Confidence Ratings

Self-reported confidence in all 5 measures increased (see data below; all items statistically significant, $p \leq .05$) .

Mean Before Activity	Mean After Activity	1= Very Low to 5 = Very High	Significance
2.94	3.65	Information Exchange	0.001
3.12	3.76	Communication Delivery	0.006
3.00	3.73	Supporting Behavior	0.012
3.07	3.70	Team Leadership	0.001
2.99	3.71	Identifying Strengths & Weaknesses	0.040

Results: Inter-Item Correlations

Academic year was significantly associated with four items, all of which were post-test survey items. This indicated a class effect in terms of self reported benefit of the SBE training exercise.

Item	Pearson Correlation Sig. (2-tailed)	Academic Year
	N	162
InfoB	Pearson Correlation	0.002
	Sig. (2-tailed)	0.979
	N	162
InfoA	Pearson Correlation	**.252****
	Sig. (2-tailed)	0.001
	N	162
CommunB	Pearson Correlation	0.099
	Sig. (2-tailed)	0.211
	N	162
CommunA	Pearson Correlation	**.239****
	Sig. (2-tailed)	0.002
	N	162
SupportB	Pearson Correlation	0.08
	Sig. (2-tailed)	0.312
	N	162
SupportA	Pearson Correlation	**.234****
	Sig. (2-tailed)	0.003
	N	162
TeamB	Pearson Correlation	0.035
	Sig. (2-tailed)	0.661
	N	162
TeamA	Pearson Correlation	**.273****
	Sig. (2-tailed)	0
	N	162
StrengthsB	Pearson Correlation	0.027
	Sig. (2-tailed)	0.734
	N	162
StrengthsA	Pearson Correlation	0.131
	Sig. (2-tailed)	0.097
	N	162

Results: Student Feedback on Sessions

- The majority of students (91%) reported that the learning experiences were worthwhile, and would have an impact on their approach to patient care and related clinical work.
- The majority of students (86%) reported that course objectives were met.
- Key theme in course evaluation comments: students stated they felt "more empowered to speak up" when part of care team.

Conclusions & Limitations

- SBE provided students with an opportunity to learn, refine and demonstrate inter-professionalism knowledge and teamwork skills while working with practicing healthcare professionals in a safe educational environment.
- *Limitations to the study include*:
  - Somewhat small sample size.
  - Inability to compare self-reported knowledge gains and performance of medical students with other types of more formal grading (e.g., written examinations, ratings of actual clinical performance in a real-world patient care setting).
- *Further research*:
  - Long-term follow up on retention of educational gains reported by students.
  - Include objective measures of student knowledge & skills, so that self-reported gains can be more firmly established.

References

[1]Sadideen H, Hamaoui K, Munir S. Simulators & the Simulation Environment: Getting the Balance Right in Simulation-Based Surgical Education. International Journal of Surgery 2012; 10: 458-62.

[2]McGaghie WC, Siddall VJ, Mazmanian PE, Myers J. Lessons for Continuing Medical Education From Simulation Research in Undergraduate & Graduate Medical Education. Chest 2009; 135 (3 Supp): 62S-68S.

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