SciMedCentral

Annals of Nursing and Practice

Research Article

An Emergency for an Interprofessional Teamwork Virtual Simulation

Mary Val Palumbo[1]*, Patrick D. Meek[2], Michael J. Racz[2], and Amy Yanicak Stoll[3]

[1]*Department of Nursing, University of Vermont, USA*

[2]*Department of Pharmacology, Albany College of Pharmacy and Health Sciences, USA*

[3]*Vermont Pharmacists Association, USA*

***Corresponding author**

Mary Val Palumbo, Department of Nursing, University of Vermont, College of Nursing and Health Sciences, 106 Carrigan Drive Burlington, VT. USA 05405-0068, USA, Tel: (802) 656-0023

Submitted: 23 January 2023

Accepted: 10 February 2023

Published: 13 February 2023

ISSN: 2379-9501

Keywords

• Virtual; Simulation; Nursing; Emergency; Interprofessional

Abstract

Background: Using teamwork skills in an emergency was the goal of this virtual simulation for nursing, nurse practitioner, pharmacy, physical therapy, and social work students.

Methods: The Team STEPPS® curriculum was used for pre-training. Online interprofessional student groups then practiced responding to a simulated patient emergency involving domestic abuse in a hospital room. Pre and post evaluation utilized The Performance Assessment Communication and Teamwork Tools Set (PACT). Statistical analysis included descriptive statistics, paired t-tests and one-way analysis of variance.

Results: Students (N=73) participated and pre/post surveys were completed (n=61). Learning and performance scores changed significantly from pre to posttest but there was no significant difference in mean responses found by profession. Students agreed that the "emergency" was not what they had expected and they appreciated the discussion of domestic violence.

Conclusions: A simulated hospital emergency, was used effectively for virtually teaching communication skills and teamwork to interprofessional student groups.

Key points

1. A virtual interprofessional activity, using a simulated emergency, required groups of students to work together for team action.

2. Observation of domestic violence in a hospital setting was a powerful "emergency" which students in the IPE activity were not expecting and create rich debriefing conversations.

3. Use of virtual teaching for interprofessional education can be helpful to eliminate scheduling and space barriers.

BACKGROUND

The COVID-19 pandemic has created a unique opportunity for enhancing virtual interprofessional education (IPE) for nursing and other health professional programs. Burdened by the logistics of large groups of students and conflicting schedules, faculties are faced with barriers to increasing IPE activities in curricula [1]. When the pandemic prevented meeting in person for a previously scheduled IPE event focused on emergency teamwork, the authors were forced to create a surprising and engaging emergency for the students to witness and take action together in virtual groups. Previously in the study setting and beyond, virtual IPE group work had focused on roles and responsibilities and team communication skills [2,3], and values [4]. Creating urgency and surprise when students are in a Zoom group necessitated a novel simulation that now can be replicated by others.

With Gregory's [5], theoretical model of the relationship between IPE and team performance as a guide, the evaluation of this activity was designed. Nursing and other faculty developed learning objectives focused on developing skills that enable optimal performance within a team. Besides pilot testing the simulation activity steps and logistics, the purpose of this study was to assess the students' development of teamwork and communication skills during an emergency situation presented in a virtual simulation.

Sample

A convenience sample of fourth year undergraduate nursing students and graduate students in nursing, pharmacy, physical therapy and social work, (at a state university and college of pharmacy), were invited to participate. Most students were given an optional course activity credit but enrollment was limited to 20 per session and 4 sessions were offered. Student groups were created to equally distribute the health professions across the groups. All students consented to participation in an IRB approval research study.

METHOD

Instructional Session One: In the first of two 90 minute Zoom

sessions, content included TeamSTEPPS® skills with instructional slides, cases/examples, and two online group puzzle exercises. The first exercise involved following simple instructions to complete a puzzle at the https://digitalpuzzle.ravensburger.us/ website as a group within five minutes. Groups then reflected on their successes and challenges as a group during that exercise. The TeamSTEPPS® [6,7], skills of communication, leadership, situations monitoring and mutual support were then introduced and an SBAR communication framework [8,9] – situation, background, assessment, and recommendation- was demonstrated with this AHRQ Patient Safety video clip (https://youtu.be/nbJPAumzJrc). The second teamwork puzzle exercise was then completed, but this time with a designed leader as well as planning based on the TeamSTEPPS® and SBAR skills.

Instructional Session Two: Students were welcomed back into their same group and given a short review of "Team Strategies & Tools to Enhance Performance & Patient Safety" (TeamSTEPPS®). Then the team was presented with a case that required interprofessional team input about her pending discharge to home after being asked by her nurse to assess the appropriateness of the discharge.

Helen Keith is a 67 year old with a history of hypertension, heart failure, and depression brought to the ED by medics and admitted for a heart failure exacerbation. She is now stable after being inpatient for 3 days. She is in her room preparing for discharge and her husband, Rob, is waiting in the family area next door.

The groups selected an individual team member (social worker or nurse) separately interviewed the patient, husband, (played by standardized patients) and reported back to the team to help inform their discharge decision. The interviews revealed a medication error, the patient experiencing adverse effects of this error, and a husband who was overwhelmed with care of their three grandchildren in his wife absence. Interviews also uncovered multiple home environment/social issues, a lack of self-efficacy, and discordance between husband and patient's stories about home environment. After making a team plan, the students were then told they would enter the patient's room to discuss it with her. The live camera of the patient's room revealed to the students, the patient cringing on the floor while being yelled at by her husband "We've got to get out of here". The live camera was then turned off and students were instructed to huddle to make an immediate action plan. A debrief followed regarding the team's plan and the experience of witnessing an unexpected patient fall and encountering with a person exhibiting violent behavior.

Students consented to a pre and post survey period. The Performance Assessment Communication and Teamwork Tools Set (PACT) was used [10]. Statistical analysis included descriptive statistics and evaluation of mean differences in pre- and post-assessments using paired t-tests. Investigating differences in mean assessment scores between disciplines was done using a one-way analysis of variance. This analysis will focus on the Learning and Performance section of the PACT survey which is most relevant to interprofessional education.

RESULTS

Participating students (N=73) included: first year graduate nurse practitioner (9), fourth year undergraduate nursing (20), third year graduate pharmacy (16), second year graduate physical therapy (23) and first year graduate social work (5). Pre/post surveys were completed (n= 61, 84% response rate). Age range was 21-58 years, Mean age – 27. Female 76% Male 22%, other/missing 2%.

There was interprofessional agreement (agree and strongly agree) of the benefits of interprofessional training both pre (94%) and post (95%) activity. Similarly, statements about team structure, leadership, situation monitoring, mutual support, communication and essential practice characteristics showed student agreement across the professions with these concepts as evaluated by the PACT tool both pre and post activity. The assessment of student confidence and comfort when participating in small interprofessional groups involved in simulation showed the largest change pre and post activity (mean difference/p value):

I enjoy learning in team based healthcare activities (0.32/0.002)

I perform well in team based healthcare activities (0.34/0.017)

I enjoy learning in simulated environments (0.32/0.002)

I perform well in simulated environments (0.42/0.006)

I enjoy learning opportunities that bring together students from other professions (0.34/0.0029)

I perform well in settings that bring together students from other professions (0.36/0.0005)

Also related to learning environments, students significantly changed their opinion about "learning in a small group is a good use of training time", with agreement pre (79%) and post (95%) (mean difference 0.5 p value <0.0001). One skill, out of eight, showed improvement: "I am able to resolve conflicts between individuals effectively" with statement agreement pre (65%) and post (97%) (mean difference 0.39 p value ⩽0.002).

Qualitative impressions were also collected in an open ended question "What is the most important learning experience you took away from the interprofessional training". Here are some representative responses:

- *"There is more to patient-centered care than just disease states and medication therapies. Every discipline has valuable input for optimizing patient care"*
- *"Don't be afraid to speak up and raise your concerns"*
- *"The benefits of working in an interprofessional team, listening to each others insights in order to provide the best plan of care for the patient"*
- *"Checking in with the other professions to make sure everyone is on the same page"*
- *"Using CUS (signal words for "concern, uncomfortable and safety) and interprofessional communication to hear other peoples' ideas and voice your own in order to provide care for the patient"*

CONCLUSION

This group of students displayed an acceptance of the need for interprofessional education and expect to work in highly functioning teams for the benefit of their patients and organizations in their future careers. This was true across all professions. Perhaps this was due to their exposure to several other interprofessional experiences as a part of formal education requirements or club/organization activities. The lack of change from pre to post activity in the areas of teamwork might have reflected their familiarity with working as part of an interprofessional team (90%) even at their current level of academics – (undergraduate nursing students with the most experience in clinical settings). Yet only 49% reported familiarity with "training" as part of an interprofessional team.

The improvement in confidence and comfort in the learning environment was an important validation of this emergency simulation. Students were surprised with the scenario and had to rely on students with more experience with patient falls and violence in the hospital; however, all teams were confident in making an action plan. Domestic violence for this emergency was important learning for many students who reported little exposure to this topic. The standardize patients were so realistic that the faculty felt a "trigger warning" might have been a good idea but worried it would have given away the surprise emergency.

Virtual learning for interprofessional students may be here to stay, as it is an effective tool that overcomes some previous barriers to interprofessional education. The challenge of creating an "emergency" over Zoom was met by this activity and might have filled a hole in some curricula regarding domestic violence.

Next steps include development of the recorded sessions into reusable content for further teamwork training. This will enable the use of this activity with a larger group of students who will be divided into breakout rooms for discussion and planning their action. The benefit of exposing more students to this content should compensate for the elimination of one-to-one conversations with the standardized patients and focus on teamwork in the face of a simulated emergency.

ACKNOWLEDGEMENT

This project had the support of an American Association of Colleges of Pharmacy Scholarship of Teaching and Learning 2019-20 Award

AUTHOR CONTRIBUTIONS

All authors have met the ICMJE 4 recommended criteria and agree to authorship order.

REFERENCES

1. Meleis AI. Interprofessional Education: A Summary of Reports and Barriers to Recommendations. J Nurs Scholarsh. 2016; 48: 106-112.
2. Robertson B, McDermott C, Star J, Lewin LO, Spell N. Synchronous virtual interprofessional education focused on discharge planning. J Interprof Educ Pract. 20121; 22: 100388.
3. Palumbo MV, De Gagne JC, Murphy G. Interprofessional care of elders: Utilizing the virtual learning environment. J Am Assoc Nurse Pract. 2016; 28: 465-470.
4. Djukic M, Adams J, Fulmer T, Szyld D, Lee S, Oh SY, et al. E-Learning with virtual teammates: A novel approach to interprofessional education. J Interprof Care. 2015; 1-7.
5. Gregory ME. The impact of interprofessional education on healthcare team performance: a theoretical model and recommendations. In Comprehensive Healthcare Simulation: InterProfessional Team Training and Simulation. Cham: Springer. 2020; 21-32.
6. Guimond ME, Sole ML, Salas E. TeamSTEPPS. Am J Nurs. 2009; 109: 66-68.
7. Parker AL, Forsythe LL, Kohlmorgen IK. TeamSTEPPS(®) : An evidence-based approach to reduce clinical errors threatening safety in outpatient settings: An integrative review. J Healthc Risk Manag. 2019; 38: 19-31.
8. Kostoff M, Burkhardt C, Winter A, Shrader S. An Interprofessional Simulation Using the SBAR Communication Tool. Am J Pharm Educ. 2016; 80: 157.
9. Thomas CM, Bertram E, Johnson D. The SBAR communication technique: teaching nursing students professional communication skills. Nurse Educ. 2009; 34: 176-180.
10. Chiu CJ, Brock D, Abu-Rish E, Vorvick L, Wilson S, Hammer D, et al. Performance Assessment of Communication and Teamwork (PACT) Tool Set. 2016.