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Assessment of Interprofessional Collaboration Before and After a Disaster Drill Experience

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Introduction/ Significance

Health care providers should have competencies in providing team-based care; however, current team-training efforts do not address needs in current professional practice. Price, Doucet, and Hall (2014) suggested early socialization can contribute to building team-based collaborative skills. The National League of Nursing [NLN] (2015) reported recent graduates are not prepared to fully provide competent team-based care and proposes to transform healthcare education to include deliberate, meaningful experiences in inter-professional collaboration and practice.

The Inter-professional Education Collaborative Expert Panel (2011) reports that care provided by a collaborative team results in better patient outcomes. This is consistent with the guiding principles for transforming healthcare as stated by the Institute of Medicine (IOM) (2003). Inter-professional Education Collaborative Expert Panel (2011) states that our society functions as an interdependent system, therefore healthcare should be provided in the same manner. Inter-professional collaboration is essential to build a team-based workforce with an understanding of the various roles and responsibilities able to communicate in an effective manner to provide patient centered care.

Methods

Design: This pretest posttest descriptive research design assessed communication, collaboration, roles/responsibilities, patient focus, team functioning and conflict management of nursing students who participated in a simulated disaster drill. For the nursing students, this simulation was a required part of the Community Health Nursing course.

Participants: A convenience sample of 109 nursing students participated in the simulated disaster drill. For inclusion, participants had to be over the age of 18 and a nursing student enrolled in the Community Health Nursing course. Exclusion criteria included participants under the age of 18 and any student not enrolled in the Community Health Nursing course. Students had an opportunity to discuss questions or address concerns regarding participation to ensure that they understood that the disaster drill is a course requirement. Participation was voluntary and did not affect course grade.

Instruments: The Inter-professional Collaborator Assessment Rubric (ICAR) was used for all participants as the pretest and posttest instrument. The ICAR is designed to assess competencies stated by the Inter-professional Executive Committee collaborative competencies. Reliability analysis of modified versions of the ICAR

demonstrated a high level of internal consistency ($\alpha = .981$) and high levels of inter-rater percent agreement, 91.5% (CI = 90.3, 92.7). Permission was granted to adapt the tool and replace “resident” with “learner” and “not observable” with “not applicable”.

Study Procedure: This study represented a partnership between the university school of nursing and emergency medical technicians, and a local community college’s nuclear medicine program. Approximately one week prior to beginning the study, the researcher explained the study, reviewed the consent and the procedures involved in participation. Using REDCap (Research Electronic Data Capture), consented students from the Community Health Nursing course completed a demographic survey and two ICAR instruments, one before and one after the simulated disaster drill. Demographic information included age, grade point average, gender, ethnicity, and employment status, including job type, was used to describe the participants. The pretest and posttest instruments took approximately 10 minutes to complete. The pretest instrument was available via an e-mail link for the undergraduate nursing students. The posttest instrument was available to all participants using same mode of delivery immediately following the simulated disaster drill. The instrument remained open one week after the disaster drill and participants received one reminder three days after the disaster drill.

Data Collection: Study data was collected and managed using REDCap electronic data capture tools hosted at the University of Delaware. REDCap is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. In addition to traditional data capture functionality, REDCap’s survey function is a powerful tool for building and managing online surveys. REDCap users can design surveys and then distribute them to potential respondents with a variety of notification methods. Real-time validation rules (with automated data type and range checks) improve accuracy of data entry. Audit reports can be generated from REDCap’s logging records of data entry, viewing, importing and exporting. REDCap was developed specifically around HIPAA-Security guidelines.

Data Analysis

A research team member downloaded the data from REDCap. REDCap automatically strips identifying information from the data set when downloaded from the server. Data was encrypted, stripped of identifiers, and stored in a secure database, REDCap. The de-identified data is stored in a password protected file and will remain on a password protected computer, which is stored behind a locked door. De-identified data for which no identifying key exists will be kept for further analysis as the database is developed. All data were analyzed using SPSS Version 25 (IBM, 2017). A total of 93 completed the electronic informed consent and the pre-ICAR. The final data only included the 58 participants who completed the pre and post-ICAR.

The ICAR instrument was totaled then the responses for each of the six sections (communication, collaboration, roles and responsibilities, collaborative patient/client-family centered approach, team functioning, conflict management and resolution) were totaled to examine the differences in each section. Due to non-normality of the data, the Wilcoxon Signed Ranks Test (Blair & Higgins 1985; Rietveld & van Hout, 2017) was

used to measure the changes between the perceptions of competency in inter-professional collaboration both pre and post disaster drill training and event.

Results

Participants were nursing majors and primarily Caucasian females ($n = 50$, 89% and $n = 56$, 97% respectively), representative of the school of nursing population at the University. Students ranged in age from 20 to 30 years old with a mean of 21.59 (2.152). The students in this study were above average with a mean grade point average of 3.38 (0.306). Almost three-quarters ($n = 41$, 71%) of the participants were employed in a healthcare related field as a Certified Nursing Assistant or Emergency Medical Technician, or other medical positions ($n = 41$, 71%). Only 6 (10%) participants were employed in a non-medical position and 18 (31%) reported that they did not work while in school.

The Wilcoxon Signed-Ranks Test indicated that scores for the total ICAR Posttest were significantly lower than the Total ICAR Pretest ($Z = -2.006$, $p = .045$, $r = -0.19$). All the sections of the ICAR had a lower mean score on the ICAR posttest compared to the pretest. Only the collaborative patient/client family centered approach section on the ICAR was significantly significant ($Z = -3.153$, $p = .002$, $r = -.30$).

Conclusion/Implications

Role identification is a significant aspect in disaster preparedness (Jose & Dufrene, 2013). Study participant's preliminary perceptions of interprofessional collaboration for a disaster drill did not reflect study participant's reflections following the disaster drill experience. While three disciplines were represented, nursing students reported less interprofessional competencies following the immersive experience. The findings may be the result of a student's perceived ability not reflecting actual inter-professional competencies. As a result, educational offerings focused on interprofessional team disaster preparedness training may further facilitate awareness of roles and responsibilities during a disaster experience.

Title:

Assessment of Interprofessional Collaboration Before and After a Disaster Drill Experience

Keywords:

Interprofessional collaboration, nursing and simulated disaster drill

References:

- Blair, R., & Higgins, J. (1985). A comparison of the power of the paired sample t-test to that of Wilcoxon's signed-ranks test under various population shapes *Psychological Bulletin*, 97 (1985), 119-128
- Curran, V.R., Hollett, A., Casimiro, L., McCarthy, P., Banfield, V., Hall, P....& Wagner, S.J. (2011). Development and Validation of the Interprofessional Collaborator Assessment Rubric (ICAR). *Journal of Interprofessional Care*, 25, 339-344.
- Curran, V.R., Hayward, M., Curtis, B., & Murphy, S. (2013). *Interprofessional Collaborator Assessment Rubric*. Retrieved

from http://www.med.mun.ca/getattachment/a943e5b4-907a-4cb7-8314-3610f4f6e386/ICAR_Modified_Final.pdf.aspx

IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Institute of Medicine (2003). *Health professions education: a bridge to quality*. Retrieved from <https://www.nap.edu/catalog/10681/health-professions-education-a-bridge-to-quality>

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Collaborative.

Jose, M.M. & Dufrene, C. (2014). Educational competencies and technologies for disaster preparedness in undergraduate nursing education: An integrative review. *Nursing Education Today*, 34, 543-551.

National League of Nursing (2015). *Interprofessional collaboration in education and practice: A living document from the national league for nursing*. Retrieved from <http://www.nln.org/docs/default-source/default-document-library/ipe-ipp-vision.pdf?sfvrs>

Price S., Doucet S., Hall L.M. (2014). The historical social positioning of nursing and medicine: Implications for career choice, early socialization and interprofessional collaboration. *Journal of Interprofessional Care*, 28 (2), 103-109.

Rietveld, T., & van Hout, R. (2017). The paired t test and beyond: Recommendations for testing the central tendencies of two paired samples in research on speech, language and hearing pathology. *Journal of Communication Disorders*, 69, 44-57.

Abstract Summary:

The purpose of this study was to assess student nurse perceptions of interprofessional collaboration before and after participation in an interprofessional disaster drill simulation. Interprofessional collaboration will be discussed in the context of a simulated disaster drill for nursing students, emergency medical technicians, and nuclear medicine students.

Content Outline:

Introduction

- Objectives:
 1. The learner will be able to discuss perceptions of interprofessional collaboration among nursing students participating in an interprofessional disaster drill simulation.
 2. The learner will be able to evaluate the importance of interprofessional simulation experiences
- Purpose
- Significance
- Background
 - Disaster Drill
- background
 - protocol
 - procedures
- Interprofessional Collaboration
 - Definition
 - Best Practices

Methods

- Design
- Instrumentation
- Procedures and Protocols
- Data Collection
- Data Analysis
- Results
- Conclusions
- Implications for the future

First Primary Presenting Author

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Author Summary: Heiddy has been working in simulation for the past 6 years. She has focused on simulation fidelity to create experiences that reflect a real patient/client experiences. She builds scenarios that incorporate simulation standards of best practice. As part of her role, Heiddy is responsible for designing each biannual disaster drill and coordinating a team to bring the drill to fruition. Each inter-professional experience includes the competencies for inter-professional teams.

Second Secondary Presenting Author

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Author Summary: Dr. Graber is currently an Assistant Professor at the University of Delaware. She is a Board Certified Psychiatric Mental Health Clinical Nurse Specialist and has her doctorate in Educational Leadership. Jennifer has worked for over seventeen years as a psychiatric nurse in many roles including teaching. She has been actively involved in the Beta Xi chapter of STTI, holding numerous positions and serving on several committees.

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Author Summary: Michelle Ness has been a registered nurse for almost 10 years and is currently pursuing a PhD in Nursing Science at the University of Delaware graduation with 2019. Her area of expertise is nursing education having taught for 12 years at the undergraduate level and serving as the Nursing Coordinator for a public school system. Ness was a Co-I of a study about simulation training in disaster drill and published/presented on various topics.

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