AUTHOR(S): BROWN, C.W., HOWARD, M. and MORSE, J.

TITLE: The use of trauma interprofessional simulated education (TIPSE) to enhance role awareness in the emergency department setting.

YEAR: 2016

Publisher citation: BROWN, C.W., HOWARD, M. and MORSE, J. 2016. The use of trauma interprofessional simulated education (TIPSE) to enhance role awareness in the emergency department setting. Journal of interprofessional care [online], 30(3), pages 388-390. Available from: https://doi.org/10.3109/13561820.2015.1121216

OpenAIR citation: BROWN, C.W., HOWARD, M. and MORSE, J. 2016. The use of trauma interprofessional simulated education (TIPSE) to enhance role awareness in the emergency department setting. Journal of interprofessional care, 30(3), pages 388-390. Held on OpenAIR [online]. Available from: https://openair.rgu.ac.uk

The use of Trauma Interprofessional Simulated Education (TIPSE) to enhance role awareness in the Emergency Department setting

Abstract

Interprofessional Simulation-based Education (IPSE) is common in medicine and nursing curricula however, less evident in diagnostic radiography. Previous work suggests graduate radiographers are unprepared in terms of trauma knowledge and experience. A trauma IPSE programme as a joint venture between two universities was developed. Our aim was to explore the views of radiography, nursing and medical students regarding preparedness for trauma practice. Second-year student radiographers (n=39), nursing (n=10) and medical (n=5) students were invited to participate in trauma simulations. Pre- and post-scenario questionnaires were completed and quantitative analysis undertaken. Prior to IPSE, the majority of students were unprepared to manage trauma. Post-scenario significantly more felt prepared to undertake their role in the team and had better understanding of their and other professions' roles in trauma ($P<0.01$). IPSE is an effective means of preparing undergraduate students in understanding both their and other professional's roles within the trauma team.

Keywords: Trauma, Interprofessional Education, Simulation, Radiography, Nursing, Medicine

Introduction

Interprofessional education is fundamental in healthcare curricula due to the need to train effectual healthcare teams (Gough, Hellaby, Jones, & MacKinnon, 2012). One method of instruction is interprofessional simulation-based education (IPSE).

IPSE occurs when two or more professions engage autonomously in realistic scenarios to learn with, from and about each other, in a controlled manner (Aliner et al., 2008). Whilst IPSE is common in medicine and nursing curricula it is less evident in other undergraduate professions including radiographers (Gough et al., 2012; Aliner et al., 2008). A recent study found that even limited simulation exposure provided students with understanding of other health professions (Alinier et al., 2014). Due to the time-sensitive, multifarious nature of the trauma setting, successful patient outcomes are reliant on effective communication and teamwork (Miller, Crandall, Washington & McLaughlin, 2012). Radiography often plays a crucial part in the early management of trauma patients as X-ray images conducted as an adjunct to the primary survey by radiographers allow rapid identification of life threatening conditions. Therefore it is disconcerting that Mackay, Anderson, & Hogg (2008) report that graduate radiographers are ill prepared in terms of trauma-team knowledge and experience with implications for the delivery of efficient, quality diagnostic imaging.

Background

To bridge this deficit, faculty from two Scottish universities developed *in situ* Trauma IPSE (TIPSE). Our aim was to explore nursing, medical and radiography students' perspectives with regards to their preparedness for dealing with 'trauma situations'. The main objectives were to increase IPSE, and prepare students for professional practice in trauma.

In pairs or triads radiography students were given a simulated scenario, using SimMan 3G Trauma (Laerdal), along with nursing and when available medical students. All scenarios involving 'trauma radiography' were led by a qualified Emergency Department physician with specialists in both nursing and trauma radiography over a three-week period. All sessions were performed 'in situ' within the resuscitation room of the hospital to enhance simulation fidelity.

Methods

This study employed a prospective, cohort intervention comparing pre- and post-scenario knowledge/perspectives.

Data collection

All second-year undergraduate radiographers plus a convenience sample of undergraduate nursing students from a variety of year groups from one Scottish university and penultimate-year medical students from the other university were invited to participate. Participants completed paired pre- and post-scenario questionnaires consisting of 5-point Likert rating scale. In total, 54 students were recruited (39 radiography, 10 nursing, 5 medical). No students had participated in '*in situ'* simulation previously.

Data analysis

Likert-scale data was imputed into SPSS v22 with paired pre- and post-scenario scores compared using Wilcoxin paired tests.

Ethical considerations

Ethical approval for this study was granted via the National Research Ethics Service.

Results

Analysis indicated that prior to completing the simulation, only eight of the students ‘felt prepared’ to deal with trauma (Likert score 4) with a mean Likert-score of 2.5 (Table 1). Post-scenario results demonstrated a rise in the mean score to 3.7 with most students feeling ‘more prepared’ to deal with trauma (Likert scores 4+5, n = 38, $P<0.01$). Just over half of the students (n=28) believed that they ‘understood their professions role in the trauma team’ prior to the scenario. This number increased post-scenario to 49 with a mean change in Likert-score of 0.9 ($P<0.01$).

INSERT TABLE 1 ABOUT HERE

In the pre-questionnaire the majority (76%) indicated ‘uncertainty as to others responsibilities within the team (Likert scores 1-3), with the cohort returning a mean Likert-score of 2.9. This mean score increased to 4.1 post-scenario, providing a statistically significant rightward shift in students’ understanding of

others' responsibilities within the trauma team (P<0.01) (Table 1). Interestingly 13 students (24%) felt unprepared to act in a multidisciplinary trauma team (Likert scores 1+2) prior to the scenario, which dropped to only one student (<2%) post-scenario (P<0.01). There did not appear to be any major differences when analysing individual professional groups. However, the numbers in the medical and nursing groups are too small to make any meaningful group-wise comparison.

Discussion

Our data suggests undergraduate healthcare students feel unprepared to work in a major trauma environment. In relation to radiographic practice, this finding is consistent with Mackay et al. (2008), who found graduate radiographers lacked confidence in major trauma and recommended that trauma simulation be integrated into undergraduate programmes. After participation in TIPSE, undergraduate healthcare students felt markedly more prepared for facing major trauma, with a significant difference seen in student perceptions of their role in relation to the trauma team post-scenario. This suggests an enhanced readiness for practice in trauma, highlighting TIPSE's positive learning effects.

Alinier et al., (2014) agree that IPSE facilitates knowledge and understanding of other health professions' roles that is well supported in the literature as a vital element in an effective team. Our post-scenario results found a significant positive shift in students' perceptions regarding major trauma and the roles of other healthcare professionals in this environment.

Miller et al. (2012) found that whilst teamwork and communication in the trauma setting improved through in situ simulations, this outcome was not sustained and they recommended a continuum of simulations maintaining interprofessional collaboration. This raises logistical and resource issues, for example high student numbers and increasing service demand can preclude organisation of authentic simulation (Buckley et al., 2012; Alinier et al., 2014). It could be argued, in a patient safety dominated climate, that sustainability of IPSE is a necessity in providing an effective collaborative workforce receptive to modern healthcare needs.

The authors acknowledge that there were a number of limitations connected to this study. Firstly the questionnaires were distributed to the students for completion at the beginning and end of each scenario, when knowledge of trauma was still fresh in the students' minds. Secondly, for the purposes of the study a limited convenience sample of students from two participating universities was used, with the majority being radiography undergraduates, while those from the medical and nursing professions were less represented. Thirdly, though a 5 point Likert scale was used for the data collection the questionnaires used within the study were not validated prior to analysis. However, the study's primary intention was to specifically focus on trauma radiography during an IPSE due to the previously reported lack of radiographer confidence within the trauma setting (MacKay et al., 2008).

Concluding comments

This study suggests that TIPSE can impart knowledge of the trauma team and prepare students, in particular radiographers, for clinical practice. Further work planned includes longitudinal follow up to ascertain if this intervention delivered at this point in their curricula improves graduate radiographers preparedness for practice, and qualitative analysis of challenges participants encountered in trauma team simulations.

Declaration of Interest

The authors report no declarations of interest. The authors are responsible for the writing and content of this paper.

References

1. Alinier, G., Harwood, C., Harwood, P., Montague, S., Huish, E., & Ruparelia, K. (2008). Development of a programme to facilitate interprofessional simulation-based training for final year undergraduate health care students. The Higher Education Academy Health Sciences and Practice Subject Centre Mini Project. York: Higher Education Academy.
2. Alinier, G., Harwood, C., Harwood, P., Montague, S., Huish, E. & Ruparelia, K. (2014). Immersive clinical simulation in undergraduate health care interprofessional education: knowledge and perceptions. *Clinical Simulation in Nursing, 10*(4), e205-216.
3. Buckley, S., Hensman, M., Thomas, S., Dudley, R., Nevin, G., & Coleman, J. (2012). Developing interprofessional simulation in the

undergraduate setting: experience with five different professional groups. *Journal of Interprofessional Care*,*26*(5), 362-369.

4. Gough, S., Hellaby, M., Jones, N., & MacKinnon, R. (2012). A review of undergraduate interprofessional simulation-based education (IPSE). *Collegian, 19*(3),153-170.

5. Mackay, S., Anderson, A., & Hogg, P. (2008). Preparedness for clinical practice - perceptions of graduates and their work supervisors. *Radiography, 14*(3), 226-232.

6. Miller, D., Crandall, C., Washington C. 3rd, & McLaughlin, S. (2012). Improving teamwork and communication in trauma care through in situ simulations. *Academic Emergency Medicine,19*(5), 608-612.