



Downs, S., Drew, L. and Shore, C. B. (2023) Effects of simulation training on student confidence in de-escalation skills. *Journal of Paramedic Practice*, 15(1), pp. 28-34.

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Deposited on: 31 January 2023

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## Introduction

With societal change there is far greater acceptance and acknowledgement of the impact of mental health issues upon individuals, with approximately 450 million people worldwide are affected by mental, neurological, or behavioural problems at any time (World Health Organisation, 2015). In addition, the prevalence of acute psychological and behavioural in a 'crisis' is increasing which, whilst important to acknowledge the impact of the COVID-19 pandemic, the NHS is highlighting the urgent and emergency nature of referrals which is inextricably linked to the reliance on community based care within mental health services (Xanthopoulou, Thomas, Dooley, 2022) Statistics support that Paramedics and Police are often the first responders with upwards of 40% of time spent responding to a crisis (Hallett et al, 2021). This increased exposure to such a patient cohort has received much attention, however discussion within literature within the past years has focused upon the psychological effect upon individuals because of their chosen profession, particularly considering that of the emergency services (Mildenhall, 2012). There is evidence to support that Paramedics are largely forgotten in the discussion about resource allocation and support with much of the narrative focused at acute and hospital emergency department deficits as oppose to the first responders (Lawn et al, 2020) There are increasing calls (World Health Organization, 2020) for first responders to be trained in the support of those in acute emotional distress with many reporting a lack of skills and understanding of the mental health systems as cause for frustration and poor outcomes (Xanthopoulou, Thomas, Dooley, 2022)

NHS England has been called on to ensure 280,000 more people living with severe mental illness have their physical health needs met by 2020/21, via better detection and improved

access to evidence-based assessment and intervention (Mental Health Taskforce, 2016).

Whilst the Department of Health and Public Health England (2016) have published guidance on how mental health nurses can help improve the physical health of people with mental health problems, the converse can be related to the ambulance service and the increasing role it plays in supporting public health and primary care. Due to the nature of public and primary encounter within which Paramedics primarily work, it is often they will meet emotionally charged, high arousal or psychologically distressed persons, be these through mental illness or psychological stressors. To manage such it is crucial to ensure that pre-registrants are equipped with the appropriate knowledge and skill application to interact with patients experiencing turmoil and potential crisis. There are calls in the literature for first responders to develop their understanding and application of the key principles of skills such as de-escalation with the aim of improving response and reduce the likelihood of adverse outcomes (Puntis et al, 2018)

It was identified to the authors from prior cohorts of students, that such was an area that they felt ill-prepared to individually manage, as with super-numerary status during placement they felt they could not take lead in engaging with such persons, compared to the registered staff they were under the supervision of, thus creating a practice-theory gap. Simulation gives students opportunities to develop technical and non-technical skills through the re-creation of an experience that is as close to reality as possible (Bradley, 2006). Students learn using previous knowledge and experience to construct new knowledge through experience and exposure. Key to this process is reflection 'in action' and 'on action' as scenarios unfold and are subsequently debriefed. This facilitates the transformation of experience into practice-based knowledge (Schon, 1991). Chadwick and

Withnell (2016) identified that activities such as role play with trained people or paid actors, films, videos, patient manikins and computerised physiological models varied the degree of fidelity or realism afforded by simulation. These were categorised into; Low-fidelity simulation, for example, techniques such as films or videos; intermediate-fidelity simulation, for example, techniques such as manikins; and high-fidelity simulation, for example, techniques such as advanced computerised models or human patient simulation/role play.

Within the University of Surrey academics have long inter-professionally taught theoretical components to share expertise; with the aim to increase student comfort with the wide variety of patient cohorts, and those with shared characteristics. A programme of immersive simulations was implemented between the Mental Health Nursing and Paramedic programme teams, to give controlled but high-fidelity exposure for students to apply the theories and frameworks of communication and interaction that have previously been provided. Considering the psychological underpinning of the illnesses that the teaching was targeting high fidelity scenarios with actors were designed to challenge the communication strategies and techniques of the students, under the supervision of the teaching team. But beyond giving exposure to such patients, the authors aimed to evaluate the use of such simulated practice could impact upon individual's confidence in interaction with these patients beyond the end of the exercise.

## **Methodology**

This evaluation is a descriptive account of the implementation of educational training to develop student self-perceptions of self-awareness and self-regulation in encountering

clinical situations that presented persons in high states of arousal and potential conflict. To evaluate the implementation process and its value, students were asked to self-evaluate their confidence and knowledge both prior to and after the teaching exercise to facilitate the 'in action' and 'on action' reflection.

### **De-escalation training**

Paramedic Science students participated in an online and face to face session focussing on 'Conflict Resolution and Crisis Resource Management', with emphasis on highlighting 'soft' clinical skills interpersonal communication and developing awareness of how to engage with persons in high arousal states. This involved discussion of the Affective Model (Kaplan and Wheeler, 1983), and how as clinical professionals entering situations we can act as both 'Triggers' and increase arousal levels. Discussions focussed upon how one may manage such, avoid increasing arousal and techniques for reducing arousal in unfamiliar situations. The face-to-face session then utilised actors and realistic environments to give students in pairs the opportunity to implement such techniques, whilst being remotely viewed and observed by tutors and peers. The situations were coached between actors and tutors to ensure that constant management and awareness was required by students to manage the environment. Subsequently all parties returned to the classroom after each scenario run to debrief and discuss learning points collaboratively across tutors, students, and actors.

### **Participants**

For several years, mental health students at the University of Surrey had undergone de-escalation training which has proved vital in preparation for practice. In a process of cross-theme inter-professional sharing, it was considered a key area of learning for paramedic science students. Students from paramedic science degree course participated in a de-

escalation training simulation as part of a course requirement. Students in their '3rd' year of study were chosen as the cohort to implement this learning because it aligned to the module specifics and permitted the perceived individual development to undertake such practice. No personal, identifiable data was collected.

### **Exercise Evaluation**

Seventy-six students undertook training as part of the module, of which all 76 choose to provide feedback. To establish if this training would prove beneficial to students, an evaluation of the teaching process was undertaken. The rationale of the evaluation was to establish if training would be effective and well received. Two aspects of student perception were collated in order to understand such. First, student self-perceptions of self-awareness were assessed via written questionnaire pre-and-post de-escalation training; the same five questions were asked pre-and-post training. The questions focused on the following, i) awareness of role; ii) confidence in managing challenging situations; iii) knowledge of mental health difficulties; iv) confidence in communication; and v) confidence in de-escalation. Students were asked to self-assess their ability to, and awareness of de-escalation against one of the following pre-defined criteria, good, adequate, or limited. Numerical grading was attributed to the pre-defined criteria, 3 = good, 2 = adequate and 1 = limited. Second, students were asked to enter free text answers to four different questions. Two questions were asked pre-training; "Do you feel prepared for today's session" and "what are you hoping to gain from the session". Two were asked post training session; first, "what will you take away from today's session" and "what other learning would you like".

### **Analysis**

Pre-and post-statistical analysis was carried out as a means to evaluate if the teaching had a positive impact. As a measure of robustness, numerical pre-and-post self-perceptions of self-awareness scores are presented descriptively, with mean (nearest whole figure) score ( $\pm$  standard deviation). Table 1 provides a detailed percentage breakdown of students self-perceived ratings pre-and-post training. A Wilcoxon signed-rank test was conducted to compare scores (pre- and post-training delivery) for the i) awareness of role; ii) confidence in managing challenging situations; iii) knowledge of mental health difficulties; iv) confidence in communication; and v) confidence in de-escalation. Free text survey responses answers were grouped thematically by authors. Questionnaire responses were first transcribed by one tutor, familiarised, before two tutors independently thematically grouped free texted answers. A third author was used to discuss any discrepancies in grouping, where a collectively consensus was reached. Grouping is presented descriptively. For example, with the question 'do you feel prepared for today's session', free text answers such as "yes" or "the pre-reading gave a good introduction to today's scenarios" were grouped into the code 'yes'. Alternatively, free text codes such as "pre-reading was good and thorough, not confident in dealing with the scenarios" or "I have read the pre-reading but find it hard to retain the right words and actions to be used in different situations" were grouped into the code 'nervous / not confident'. Appendices 1-4 provide a detailed breakdown of free text answers, while Table 2 provides a breakdown of these thematically grouped answered provided by students' when free text answers to pre-and-post questions relating to their self-perceived preparedness for the session, what they hoped to gain from the session, what they will take away and make use of, and what additional learning do they feel would be appropriate.

## Results

The evaluation of the exercise was positive where students self-reported improvements and valued the inclusion of the exercise. Predominantly, students self-rated as their knowledge as adequate. All questions saw a positive shift in post training self-assessment (Table 1). Question 1 and question 3 saw mean rating move from adequate to good, post training. A Wilcoxon signed-rank test indicated that post-test scores were statistically significantly higher than pre-test scores across all five areas of assessment (Figure 1): 1) de-escalation training improved student awareness of the skill ( $W = 906.0, p = <0.0001$ ); 2) Student confidence in managing challenging situations ( $W = 1711.0, p = <0.0001$ ); 3) Student knowledge of mental health difficulties ( $W = 352.0, p = <0.0001$ ); 4) Student confidence in communication within an escalated situation ( $W = 821.0, p = <0.0001$ ); and 5) Confidence to de-escalate a situation ( $W = 1716.0, p = <0.0001$ ). Aside from the five percent ( $n=4$ ) of students who did not know what to expect from the training session, and the 18% ( $n=14$ ) who did not provide an answer, there was an even split of student's feelings prior to the training ranging from confidence through to not feeling prepared (table 2). Forty-three percent ( $n=33$ ) indicated improving confidence in being able to de-escalate a situation was reported as the key outcome they wanted to take from teaching exercise, along with (26%  $n=20$ ) techniques on how to de-escalate a scenario. Post-teaching session, 28% ( $n=21$ ) reported that they left with greater knowledge and 13% ( $n=10$ ) felt more confident in dealing with a situation. Fifty-three ( $n=40$ ) reported that they would make use of the taught techniques when de-escalating a scenario. Of those, further evaluation showed that body language (40%  $n=7$ ) and spatial awareness and positioning (30%  $n= 12$ ) were the most common techniques that resonated with students to take forward into their clinical practice. Use of voice (18%  $n=7$ ) was the other action pupils stipulated they would use, while 5 (12%) did not stipulate a specific technique they would use. Lastly, on exploring



what further training would be well received by students, increased knowledge and signposting opportunities around mental illness (24% n=18) and scenario-based training (22% n=17) was rated highest, however, 21% (n=16) of students did not provide an answer.

## **Discussion**

Communication is fundamental to good practice, as strategies for preventing and reducing conflict have the potential to improve patient safety in healthcare (Panagioti et al, 2019). However, teaching it presents a challenge to both students and teachers (Downs and Hall, 2020).

The teaching exercise looked to make techniques and processes more explicit, enabling inexperienced clinicians to learn from the processes (Pinnock et al, 2015). The exercise allowed students to critically engage with their own methods and processes of working, while explicitly considering the theoretical context of such situations within a safe setting. An overall improvement in knowledge and confidence to manage mental health problems, most evident in the sharp drop in the number who rated themselves or their knowledge as 'limited'. Paramedic students referred to the development of knowledge, practice confidence and non-technical communication skills, and emphasised the value of interdisciplinary learning, as they were able to pick up "talking tactics and approaches" from their peers and from subsequent discussions; there was particular focus on the unconscious mannerisms that they were previously unaware of.

The improvement in student comfort displays the value of being allowed to practice, as opposed to just discussing the 'soft skills' utilised within clinical practice, whilst in a safe and controlled environment. The potential adverse effects of improper communication whilst

with persons in high arousal states is shown within statistics showing assaults on NHS staff increasing, whereby 75,000 staff are assaulted each year (Wong et al, 2019). Whilst it is not necessarily staff action that precipitates such, the techniques implemented highlighted to students how the actions and manner of individuals can alter the dynamic and atmosphere of situations when there are persons under high stress. Traditional methods of treating agitated patients, i.e., routine restraints and involuntary medication, have been replaced with a much greater emphasis on a noncoercive approach (Price et al, 2018). Experienced practitioners have found that if such interventions are undertaken with genuine commitment, successful outcomes can occur far more often than previously thought possible. In the new paradigm, a three-step approach is used. First, the patient is verbally engaged; second, a collaborative relationship is established; and, finally, the patient is verbally de-escalated out of the agitated state (Richmond et al, 2012). Agitation is a behavioural syndrome that may be connected to different underlying emotions, the nature of which are exacerbated, or precipitated by emergent situations or the input of strangers, such as Paramedics, who may be considered a 'risk'. Associated motor activity is usually repetitive and non-goal directed and may include such behaviours as foot tapping, hand wringing, hair pulling, and fiddling with clothes or other objects. Repetitive thoughts are exhibited by vocalizations such as, "I've got to get out of here. I've got to get out of here." Irritability and heightened responsiveness to stimuli may be present, but the association of agitation and aggression has not been clearly established.

Qualitative comments expressed how students felt enabled to feel less 'overwhelmed' by the presentations and interactions, and the utilisation of others available if they found barriers to communication with those affected.

Given that this was not, a formal research study to explore the impact of the training, rather part of an established teaching programme and development of skills, there was no requirement for explicit ethical application. All the information collected and was conducted to inform the teaching evaluation purposes. Participation was voluntary in the practical aspect of the teaching exercise, but attendance at the module teaching was mandated as part of the pre-registration programme. Students were also informed that providing (or not) feedback in no way would influence their grade in the clinical course. Since undergoing this evaluation, this teaching exercise will now be implemented into future degree programmes and a research project will start to establish if there are differences in learning and its impact on students (gender vs age vs experience etc); such has undergone full ethical review, and received favourable approval, permitting full and potential longitudinal exploration of such training on the confidence and retention of such in undergraduate students.

## **Conclusion**

Authors note that it is expected that after such exercises it would be expected for learners to report improvement within confidence and understanding, future work for greater assessment of the teaching exercise, with data collection and statistical analysis, with Ethical Approval, across multiple cohorts is anticipated. While it is not possible at this stage to definitively measure the impact of the teaching on practice or draw firm conclusions for education providers, the exercise does evidence individual impact and enjoyment, and we hope may lead others to consider the use of scenario-based learning for such skills. The flexible educational method has potential to address pressing contemporary challenges in

healthcare, such as increasing staff awareness and safety, and consideration of the reduced length and quality of life for those people with co-occurring physical and mental health problems.

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## 24. Tables and Figures

**Table 1.** Pre-and-post self-perceptions of self-awareness with mean scores ( $\pm$  standard deviation)

		Good (3)	Adequate (2)	Limited (1)	Mean ( $\pm$ SD)
<b>1</b> Awareness of role	Pre	36%	51%	13%	2 ( $\pm$ 0.6653)
	Post	82%	18%	0%	3 ( $\pm$ 0.3902)
<b>2</b> Confidence in managing challenging situations	Pre	8%	46%	46%	2 ( $\pm$ 0.6318)
	Post	46%	54%	0%	2 ( $\pm$ 0.5018)
<b>3</b> Knowledge of mental health difficulties	Pre	18%	62%	20%	2 ( $\pm$ 0.6217)
	Post	38%	57%	5%	2 ( $\pm$ 0.5748)
<b>4</b> Confidence in communication	Pre	25%	62%	13%	2 ( $\pm$ 0.6103)
	Post	67%	32%	1%	3 ( $\pm$ 0.5047)
<b>5</b> Confidence in de- escalation	Pre	7%	50%	43%	2 ( $\pm$ 0.6076)
	Post	47%	51%	1%	2 ( $\pm$ 0.5277)

**Table 2.** Free text response to student self-reported awareness around de-escalation pre and post training

	Count	%
No answer	11	14%

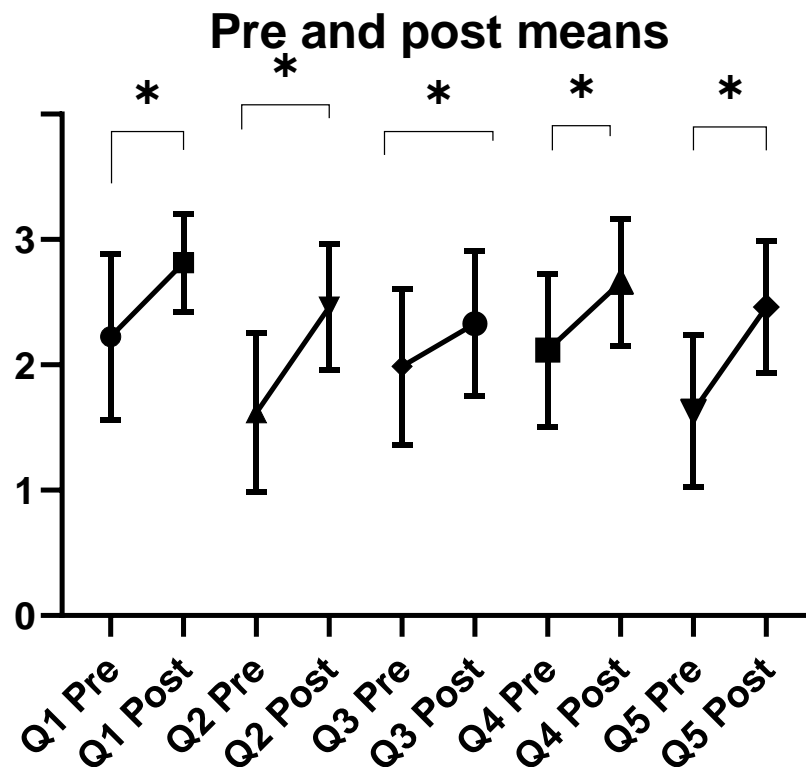


## Evaluation of Interprofessional Simulation

Do you Feel Prepared for today's session? (n=76)	No	14	18%
	I Don't know what to expect	4	5%
	Nervous / not confident	15	20%
	Somewhat / fairly	15	20%
	Yes	17	22%
What are you hoping to gain from this experience (n=76)	No answer	5	7%
	Improved confidence in de-escalation	34	45%
	Knowledge of techniques to use in de-escalation	20	26%
	Improved communication skills	3	4%
	Improved knowledge	14	18%
What will you take from today's session? (n=76)	No answer	2	3%
	Techniques to de-escalate a scenario	40	53%
	Realism of the training scenario	3	4%
	Confidence to deal with an escalating scenario	10	13%
	Knowledge - general improvement	21	28%
Specified techniques to be used (n=40)	Not specified	5	13%
	Use of body language	16	40%
	Positioning in a situation / spatial awareness	12	30%
	Communication / voice	7	18%
What other learning would you like in relation to de- escalation	No answer	16	21%
	Scenario based learning	17	22%
	Techniques for aggressive patients	10	13%
	Actor lead training	13	17%

(n=76)

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**Figure 1.** Pre and post means of student self-awareness pre-and-post de-escalation training across the following five questions: i) awareness of role; ii) confidence in managing challenging situations; iii) knowledge of mental health difficulties; iv) confidence in communication; and v) confidence in de-escalation. \* Represents statistical significance (<math><.05</math>).

#### Acknowledgements

N/A

#### Conflict of interest

The authors declare no conflict of interest.

#### Funding sources

N/A