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ORIGINAL RESEARCH

Evaluating the Feasibility and Effectiveness of an Interdisciplinary Verbal De-Escalation and Implicit Bias Check Training for Agitation Management in the Emergency Department

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Purpose: Recent scholarship has revealed racial disparities in emergency department (ED) physical restraint use in agitation management. We implemented an interdisciplinary educational program that integrates discussions about the role of bias in physical restraint use with workplace violence (WPV) prevention strategies to increase awareness of implicit bias and comfort with verbal de-escalation among ED staff.

Patients and Methods: In partnership with hospital security at a large urban academic medical center, we developed a 1-hour online WPV prerequisite course followed by a 2-hour multi-modal, in-person training consisting of 40 minutes each of didactics, an interactive defensive skills workshop, and case-based simulations with structured debriefings. From September 2022 to June 2023, all patient-facing ED staff were invited to participate and received a $100 gift card for program completion. Participants rated their confidence and comfort in various aspects of agitation management on a 5-point Likert scale before and immediately after via pre- and post-training surveys. Wilcoxon matched-pairs tests were employed for analysis.

Results: Of 91 participants, 72 (79%) completed the pre- and post-training surveys. Representing a wide range of ED role groups, 74% of participants were clinical staff and a majority had 0–5 years of experience (65%). Among all participants, there was a statistically significant improvement in confidence and comfort with the various aspects of agitation management across all 11 questions ($p<0.001$). A similar change was observed among the clinical staff ($p<0.001$), however, the degree of improvement observed among those with greater than 5 years of experience was less dramatic than among clinical staff with 0–5 years of experience.

Conclusion: Interdisciplinary multi-modal training can improve confidence and comfort with verbal de-escalation and implicit bias checks in team-based agitation management. Additional research is needed to understand if such integrated training can also reduce physical restraint use, racial disparities in restraint use, and WPV events.

Keywords: physical restraints, psychiatry, emergency medicine, implicit bias, de-escalation training, quality improvement, education, agitation, workplace violence

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Introduction

In 2012, the American Association for Emergency Psychiatry's Project BETA De-escalation Workgroup released a consensus statement outlining best practices for the management of agitated patients. They proposed a 3-step approach in which the patient is first verbally engaged, then a collaborative relationship is established, and finally, the patient is verbally de-escalated out of the agitated state.[1] The group's recommendations have provided the basis for multiple interventions aimed at managing agitated patients in the ED and avoiding unnecessary use of physical restraints. Physical restraints can have serious physical adverse outcomes[2,3] and be psychologically distressing to patients, leading to lasting negative consequences including a decreased probability of attending outpatient follow-up mental health appointments.[4,5] Populations at risk of physical restraint in the emergency department (ED) have included young males under the influence of alcohol or drugs,[6] patients with mental illness particularly those on home antipsychotics,[7] and elderly patients with behavioral disturbances.[8] Recent literature suggests that a patient's race and ethnicity may also constitute a risk factor for restraint use, with two of those studies (Schnitzer et al, Carreras Tartak et al) highlighting those disparities within our own ED.[9–12]

Project BETA recommendations have been leveraged to develop interventions aimed at improving comfort with verbal de-escalation. Most notably, a single-center study leveraged the use of simulation to have interdisciplinary groups in the ED practice verbal de-escalation with standardized patients followed by structured debriefing. While constructs for internal factors, external factors, and situational/interactional perspectives on patient aggression significantly improved post-intervention, staff attitudes toward the management of patient aggression did not change.[13] Another study at a level 2 trauma center found that staff felt more comfortable with de-escalation techniques in the ED following a 4-hour training course integrating BETA Project recommendations into simulated cases.[14]

While reducing unnecessary restraints is critical, it must be balanced with workplace violence (WPV) prevention strategies in order to ensure staff safety. ED staff face a significantly increased risk of WPV relative to other healthcare settings, making it a preventable public health problem in need of urgent attention.[15,16] In a 2011 survey of physicians across 65 emergency medicine (EM) residency programs in the US, 78% of respondents reported experiencing at least one WPV act in the prior 12 months. Despite this, only 16% of programs at the time provided violence prevention workshops, and less than 10% offered self-defense training.[17] Multiple studies have shown nurses to be the most vulnerable to ED WPV,[18] with some surveys showing that 100% of ED nurses have experienced WPV.[19] These factors underscore the critical need for an interdisciplinary approach to de-escalating aggressive patients, ensuring that all ED staff are equipped to manage and mitigate these risks effectively as a team.

In 2022, The Joint Commission (TJC) incorporated annual worksite analysis and management of risks, staff education and training, and WPV prevention programs into its accreditation standards.[20] The restraint process—specifically, involuntary medication administration, physical restraint, and seclusion—is a common WPV intervention in hospital security practice despite its known complications.[21] Hospital security personnel have expressed interest in collaborating with clinical teams on trauma-informed approaches to addressing WPV.[22] Thus, the new TJC standards present an opportunity to develop a balanced approach to maximizing workplace safety while minimizing unnecessary physical restraint.

Prior to the development of our integrated training program, nurses and non-clinical staff received a 3-hour in-person Management of Aggressive Behavior (MOAB®) training (Training International, Inc., Royersford, PA)[23] provided by our Police and Security (P&S) Department as part of their new employee orientation and available thereafter on an optional basis. Resident physicians also completed this training as part of their intern orientation. With particular attention to personal safety, this training focused on self-defense techniques to employ while handling agitated patients. In 2021, the hospital implemented all-staff mandatory online educational modules on race and structural racism as part of the health system's commitment to anti-racism. The P&S Department also updated its WPV training offering in 2021 to AVADE® (Awareness-Vigilance-Avoidance-Defense-Escape) Workplace Violence Prevention training (Personal Safety Training, Inc., Coeurd'Alene, ID).[24] However, there was a lack of in-person training on these topics across staff groups and a lack of EM-specific training to facilitate the practice of de-escalation as an interdisciplinary team in the ED. There was also no

integration between the discussions of structural racism, its role in physical restraint, and its implications for the management of agitated ED patients.

To bridge the gap in interdisciplinary education specifically focused on promoting verbal de-escalation and reducing racial bias in the ED application of physical restraints, a team of EM residents developed a simulation-based curriculum that was piloted between 2021 and 2022. These sessions consisted of a didactic lecture discussing the evidence-based implications of structural racism in medicine (with specific reference to the disparities literature in ED restraint use), followed by a review of best practices in verbal de-escalation with emphasis on a process for recognizing and mitigating implicit biases. Participants then practiced verbal de-escalation skills during two simulated cases involving agitated patients played by actors of color followed by robust structured debriefs. After completing these sessions, participants felt more comfortable recognizing and addressing their own racial biases, addressing racial bias against agitated patients, and verbally de-escalating patients.[25] Suggestions for enhancing the learning experience were also elicited from pilot participants and incorporated where feasible and consistent with training goals.

Leveraging our successful pilot sessions, we worked with hospital security to integrate our curriculum with WPV prevention programming. Our primary aim in developing this educational program was to balance the need for team-based, interdisciplinary training that could improve workplace safety while simultaneously highlighting the need to reduce the incidence of preventable restraints, in particular those in which racial and other forms of implicit bias might impact restraint decisions. A secondary aim was to increase clinician and non-clinician comfort and skill with verbal de-escalation and implicit bias checks.

Materials and Methods

Curriculum Development

This was a single-center observational pre- and post-intervention study at an urban academic medical center with over 110,000 annual visits and a trauma level 1 designation. A working group of EM attending and resident physicians and ED nurses met with educational leaders from the P&S Department over 4 months to develop an in-person training that incorporated AVADE® principles and material from our pilot sessions, with an emphasis on the simulated cases and the role of race and ethnicity in restraint use. A 2-hour training was developed consisting of a 20-minute didactic session on AVADE® principles led by P&S, a 20-minute didactic session on structural racism in healthcare and verbal de-escalation techniques led by EM faculty and residents, a 40-minute hands-on personal defense skills workshop led by P&S, and a 40-minute simulation exercise using the two cases from the pilot sessions followed by debriefs led by EM faculty and residents.

The 20-minute AVADE® didactic covered topics on how to prioritize staff safety when managing agitated patients and introduced verbal de-escalation skills. The 20-minute didactic on structural racism and de-escalation reviewed the concept of race as a social construct and provided examples of structural racism leading to adverse outcomes in healthcare, including literature on racial disparities in restraint use. It also included a brief introduction to trauma-informed care, an unbiased de-escalation checklist designed to prompt an intentional pause to check for implicit biases that could be influencing staff's perception of an agitated patient and decision to restraint, and a list of de-escalation tactics with a helpful mnemonic ("RELAXS", Figure 1).

The 40-minute personal defense skills workshop featured hands-on exercises on how to position oneself safely in a patient room and basic maneuvers to block attacks from a physically aggressive patient and escape from the room. The 40-minute simulation exercise was designed to create realistic patient scenarios with paid standardized patients during which participants could role-play and practice verbal de-escalation skills. The first simulation case featured an agitated trauma patient with a stab wound to the chest who resists being undressed from the waist down due to the presence of an ankle monitor. The second case was a patient who endorses suicidal ideation to a family member and becomes agitated when told he would be placed on an involuntary psychiatric hold in the ED. Both simulated cases were played by standardized patient actors of color trained during the pilot sessions and were based on actual patient cases from our ED. Structured debriefing focused on skills well-executed, missed opportunities, and optimal spatial configuration for staff safety and empathic stance and spacing.

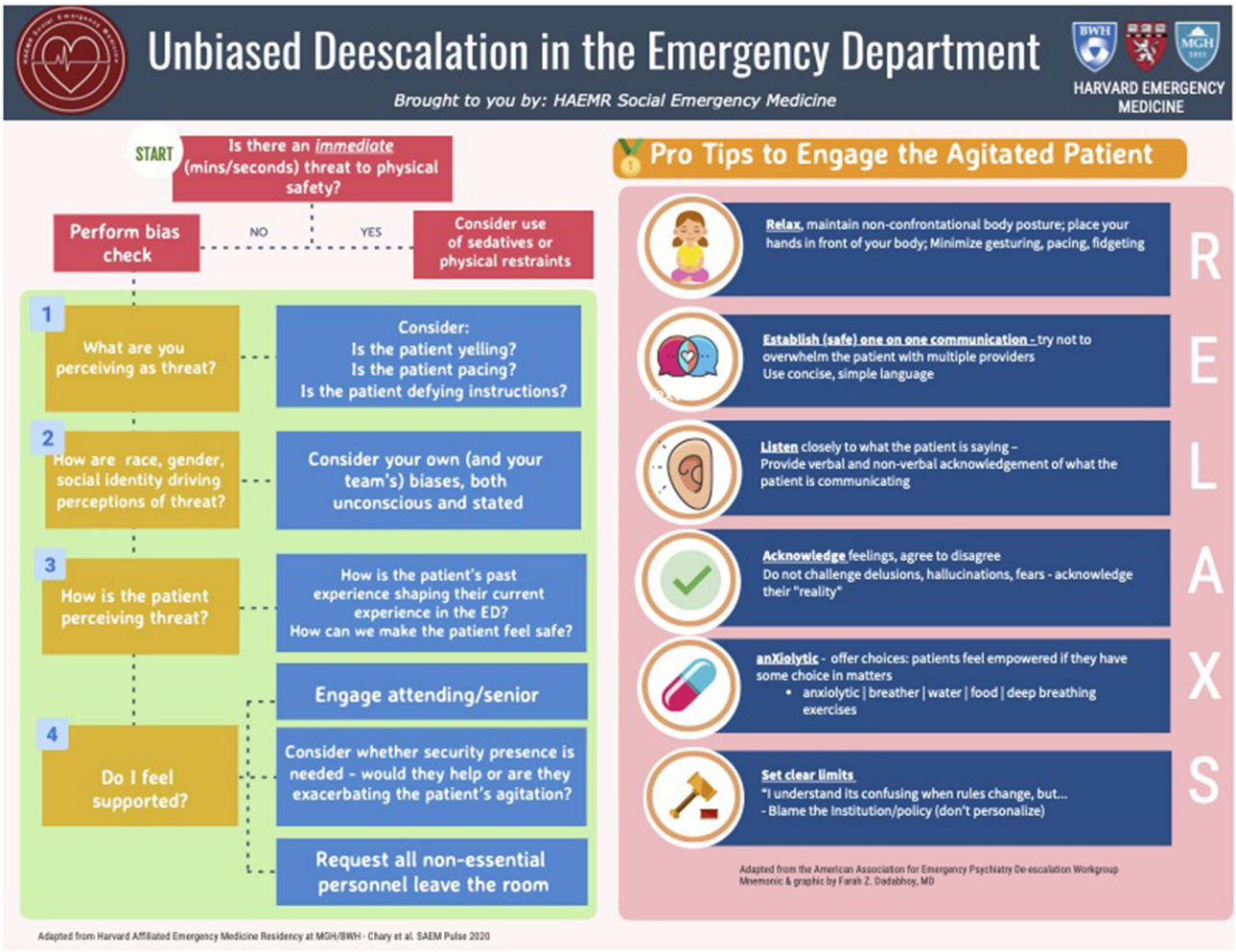

Figure 1 Unbiased de-escalation checklist and RELAXS mnemonic.

Participant Recruitment

Faculty from the working group met with departmental leadership to garner support for the training. Email announcements for the training were sent to various stakeholder groups including EM faculty, residents, and advanced practice providers (APPs); ED nurses, patient care assistants, unit coordinators, patient sitters, and patient navigators; ED social workers; and acute care Psychiatry faculty, residents, and APPs. EM interns received this training as part of their mandatory first-year orientation. Training sessions were held between September 2022 and June 2023. Attendance and group composition was variable across sessions. Participants received a $100 gift card to the hospital cafeteria as remuneration for their time. Compensation was pursued to incentivize a larger proportion of our staff to participate given that many were completing this training before or after clinical shifts, and to minimize self-selection bias. The amount of $100 was chosen to keep compensation enticing enough for the highest earners of the group (ie EM faculty), since we gave each employee the same amount regardless of their role in the department.

Course Evaluation

We developed a pre- and post-training confidential paper survey to gauge participant confidence with managing agitated patients in the ED, maintaining personal and other staff safety, speaking up when there is a perceived problem with the de-escalation of an agitated patient, implementing verbal de-escalation and trauma-informed care, and conducting a self-bias check. Participants were given 11 questions and asked to rank their degree of preparedness on a 5-point Likert scale (1 = "Strongly Disagree", 5 = "Strongly Agree) (Figure 2). The surveys also asked about the learner's role in the hospital

Q1. I feel prepared to manage an agitated patient in the ED.

Q2. I am confident in my ability to manage an agitated patient while considering their safety in the ED.

Q3. I am confident in my ability to maintain my personal safety and my colleagues safety while managing an agitated patient in the ED.

Q4. I feel prepared to work in a team to manage an agitated patient in the ED.

Q5. I feel confident in my ability to speak up if I perceive a problem during a de-escalation regardless of who might be affected.

Q6. I have received adequate education on how to manage agitation safely and effectively in the ED.

Q7. I am confident in my ability to implement verbal de-escalation techniques when working with an agitated patient in the ED.

Q8. I feel prepared to apply trauma-informed care principles when managing an agitated patient in the ED.

Q9. I feel prepared to conduct a bias check when managing an agitated patient in the ED.

Q10. I feel prepared to apply the concepts in the RELAXS mnemonic as a way to help agitated patients feel seen, heard, and safe during verbal de-escalation in the ED.

Q11. I feel prepared to apply the AVADE® workplace safety and defense skills in the management of agitated patients in the ED.

Open-ended questions included in the post-training survey only:

1. What was most effective about today's didactic, skills, and simulation training?
2. What could be improved about our training program to make it more effective?

Figure 2 Pre- and post-survey self-assessment questions.

and number of years in practice. The post-training survey differed from the pre-training survey only in that it also included two open-ended questions for participants to provide free-text qualitative feedback regarding their experience with the training. Although anonymous, the pre- and post-training survey responses of each individual participant were paired by matching the unique code assigned to paired surveys. The surveys were administered both via Email and in person.

Data Analysis

We performed descriptive analyses of the participant population and reported frequency and percent by role; role type, categorized as clinical (physicians, nurses, APPs) or non-clinical (all other roles); and years of experience in health care, categorized as 0 to 2 years, 2 to 5 years, 5 to 10 years, and >10 years. We then performed descriptive analyses of survey responses for each question, stratified by pre- and post-training periods, reported as frequency and percent as well as the median response value. The Matched Pairs Wilcoxon Test was implemented to evaluate differences between pre-survey and post-survey responses for each question. We performed secondary analyses of the quantitative survey results stratified by role type and years of experience, categorized as 0 to 5 years and over 5 years. Free text responses were analyzed in aggregate using Voyant Tools[26] and summarized for important themes.

Results

Across 14 sessions, a total of 91 participants completed the training, of which 72 (79%) completed both the pre- and post-training surveys. The characteristics of the 72 participants who completed the survey are included in Table 1. Most respondents (n=53, 74%) were clinical staff (faculty, residents, APPs, nurses, and social workers), among which 28 (39%) were EM providers and 8 (12%) were Psychiatry providers working in the ED. An average of 6 to 7 staff participated in each training session with random role group mixes based on staff availability.

Table 1 Participant Role and Years of Experience

		Participants (n = 72)
Role Group	EM Faculty	7 (10%)
	EM Resident	16 (22%)
	EM APP	5 (7%)
	Nurse	16 (22%)
	Psychiatry Faculty	2 (3%)
	Psychiatry Resident	2 (3%)
	Psychiatry APP	4 (6%)
	Social worker	1 (1%)
	Patient care assistants	10 (14%)
	Other (eg unit coordinators, registration staff)	9 (13%)
Role Type	Clinical	53 (74%)
	Non-Clinical	19 (26%)
Years of Experience in Healthcare	0–2 years	21 (29%)
	2–5 years	26 (36%)
	5–10 years	15 (21%)
	>10 years	10 (14%)

Abbreviations: EM, Emergency Medicine; APP, advanced practice provider.

Among all respondents, there was a significant difference toward self-reported comfort and confidence in all 11 questions after completing our training. The average responses improved from "Agree" to "Strongly Agree" for all questions except for question 2 (*confidence in the ability to manage agitation while considering safety*) in which the average response remained "Agree"; and between questions 6 (*received adequate education on agitation management*) and 8 (*feel prepared to apply trauma-informed care principles*), where responses trended from "Disagree" to "Strongly Agree" between the pre- and the post-training surveys (Table 2).

Table 2 All Respondent Pre- and Post-Training Survey Average Responses

N= 72	**Pre-Training**					**Post-Training**					**Matched Pairs Wilcoxon Test p-value**
	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**	**Median Response**	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**	**Median Response**	
Q1	2 (3%)	17 (24%)	51 (71%)	2 (3%)	Agree	0 (0%)	1 (1%)	31 (43%)	40 (56%)	Strongly Agree	<0.001
Q2	2 (3%)	23 (32%)	44 (61%)	3 (4%)	Agree	0 (0%)	1 (1%)	35 (49%)	36 (50%)	Agree	<0.001
Q3	4 (6%)	25 (35%)	40 (56%)	3 (4%)	Agree	0 (0%)	1 (1%)	30 (42%)	41 (57%)	Strongly Agree	<0.001
Q4	2 (3%)	10 (14%)	55 (76%)	5 (7%)	Agree	0 (0%)	0 (0%)	30 (42%)	42 (58%)	Strongly Agree	<0.001
Q5	1 (1%)	17 (24%)	43 (60%)	11 (15%)	Agree	0 (0%)	2 (3%)	30 (42%)	40 (56%)	Strongly Agree	<0.001
Q6	4 (6%)	37 (51%)	28 (39%)	3 (4%)	Disagree	0 (0%)	1 (1%)	20 (28%)	51 (71%)	Strongly Agree	<0.001
Q7	2 (3%)	25 (35%)	40 (56%)	5 (7%)	Agree	0 (0%)	0 (0%)	31 (43%)	41 (57%)	Strongly Agree	<0.001
Q8	3 (4%)	38 (53%)	27 (38%)	4 (6%)	Disagree	0 (0%)	4 (6%)	31 (43%)	37 (51%)	Strongly Agree	<0.001
Q9	5 (7%)	27 (38%)	34 (47%)	6 (8%)	Agree	0 (0%)	3 (4%)	29 (40%)	40 (56%)	Strongly Agree	<0.001
Q10	1 (1%)	9 (12%)	53 (74%)	9 (12%)	Agree	0 (0%)	5 (7%)	25 (35%)	42 (58%)	Strongly Agree	<0.001
Q11	3 (4%)	31 (43%)	34 (47%)	4 (6%)	Agree	0 (0%)	2 (3%)	26 (36%)	44 (61%)	Strongly Agree	<0.001

Among clinical staff, the results were similar in that average responses improved from "Agree" to "Strongly Agree" in the post-training survey, with the exceptions of question 2, where the average response remained "Agree"; questions 6 and 11 (*feel prepared to use AVADE® principles to keep safe)*, where the average response improved from "Disagree" to "Strongly Agree"; and question 8 where the average response improved from "Disagree" to "Agree" (Table 3).

When stratifying participants by years of experience, we found that those with 5 years of experience or less showed the largest amount of improvement, with average responses moving from "Disagree" and "Agree" to "Strongly Agree" in all questions. In contrast, participants with over 5 years of experience saw less dramatic improvement in pre- and post-survey responses. Average response remained at "Agree" for questions 1 through 5 and question 10, though there was improvement in responses for all other questions (Tables 4 and 5).

Table 3 Clinical Staff Pre- and Post-Training Survey Average Responses

N=53	Pre-Training						Post-Training				Matched Pairs Wilcoxon Test p-value
	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	
Q1	1 (2%)	13 (25%)	37 (70%)	2 (4%)	Agree	0 (0%)	1 (2%)	24 (45%)	28 (53%)	Strongly Agree	<0.001
Q2	1 (2%)	22 (42%)	27 (51%)	3 (6%)	Agree	0 (0%)	1 (2%)	28 (53%)	24 (45%)	Agree	<0.001
Q3	3 (6%)	21 (40%)	27 (51%)	2 (4%)	Agree	0 (0%)	1 (2%)	24 (45%)	28 (53%)	Strongly Agree	<0.001
Q4	1 (2%)	9 (17%)	39 (74%)	4 (8%)	Agree	0 (0%)	0 (0%)	23 (43%)	30 (57%)	Strongly Agree	<0.001
Q5	0 (0%)	15 (28%)	30 (57%)	8 (15%)	Agree	0 (0%)	2 (4%)	23 (43%)	28 (53%)	Strongly Agree	<0.001
Q6	3 (6%)	31 (58%)	16 (30%)	3 (6%)	Disagree	0 (0%)	1 (2%)	14 (26%)	38 (72%)	Strongly Agree	<0.001
Q7	1 (2%)	22 (42%)	26 (49%)	4 (8%)	Agree	0 (0%)	0 (0%)	24 (45%)	29 (55%)	Strongly Agree	<0.001
Q8	2 (4%)	28 (53%)	19 (36%)	4 (8%)	Disagree	0 (0%)	4 (8%)	23 (43%)	26 (49%)	Agree	<0.001
Q9	3 (6%)	21 (40%)	23 (43%)	6 (11%)	Agree	0 (0%)	3 (6%)	20 (38%)	30 (57%)	Strongly Agree	<0.001
Q10	0 (0%)	7 (13%)	39 (74%)	7 (13%)	Agree	0 (0%)	5 (9%)	18 (34%)	30 (57%)	Strongly Agree	<0.001
Q11	2 (4%)	28 (53%)	21 (40%)	2 (4%)	Disagree	0 (0%)	2 (4%)	20 (38%)	31 (58%)	Strongly Agree	<0.001

Table 4 All Respondent Pre- and Post-Training Survey Average Responses Among Participants With 0 to 5 years of Experience

N=47	Pre-Training					Post-Training					Matched Pairs Wilcoxon Test p-value
	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	
Q1	1 (2%)	12 (26%)	33 (70%)	1 (2%)	Agree	0 (0%)	1 (2%)	18 (38%)	28 (60%)	Strongly Agree	<0.001
Q2	1 (2%)	16 (34%)	28 (60%)	2 (4%)	Agree	0 (0%)	1 (2%)	21 (45%)	25 (53%)	Strongly Agree	<0.001
Q3	3 (6%)	14 (30%)	27 (57%)	3 (6%)	Agree	0 (0%)	0 (0%)	18 (38%)	29 (62%)	Strongly Agree	<0.001
Q4	1 (2%)	7 (15%)	34 (72%)	5 (11%)	Agree	0 (0%)	0 (0%)	16 (34%)	31 (66%)	Strongly Agree	<0.001
Q5	1 (2%)	13 (28%)	25 (53%)	8 (17%)	Agree	0 (0%)	1 (2%)	18 (38%)	28 (60%)	Strongly Agree	<0.001
Q6	2 (4%)	25 (53%)	18 (38%)	2 (4%)	Disagree	0 (0%)	1 (2%)	9 (19%)	37 (79%)	Strongly Agree	<0.001
Q7	1 (2%)	17 (36%)	24 (51%)	5 (11%)	Agree	0 (0%)	0 (0%)	19 (40%)	28 (60%)	Strongly Agree	<0.001

(*Continued*)

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Table 4 (Continued).

N=47	Pre-Training					Post-Training					Matched Pairs Wilcoxon Test p-value
	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	
Q8	3 (6%)	25 (53%)	17 (36%)	2 (4%)	Disagree	0 (0%)	2 (4%)	20 (43%)	25 (53%)	Strongly Agree	<0.001
Q9	5 (11%)	15 (32%)	24 (51%)	3 (6%)	Agree	0 (0%)	1 (2%)	19 (40%)	27 (57%)	Strongly Agree	<0.001
Q10	1 (2%)	3 (6%)	36 (77%)	7 (15%)	Agree	0 (0%)	4 (9%)	13 (28%)	30 (64%)	Strongly Agree	<0.001
Q11	3 (6%)	17 (36%)	24 (51%)	3 (6%)	Agree	0 (0%)	1 (2%)	16 (34%)	30 (64%)	Strongly Agree	<0.001

Table 5 All Respondent Pre- and Post-Training Survey Average Responses Among Participants With Over 5 years of Experience

N=25	Pre-Training					Post-Training					Matched Pairs Wilcoxon Test p-value
	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	Strongly Disagree	Disagree	Agree	Strongly Agree	Median Response	
Q1	1 (4%)	5 (20%)	18 (72%)	1 (4%)	Agree	0 (0%)	0 (0%)	13 (52%)	12 (48%)	Agree	<0.001
Q2	1 (4%)	7 (28%)	16 (64%)	1 (4%)	Agree	0 (0%)	0 (0%)	14 (56%)	11 (44%)	Agree	<0.001
Q3	1 (4%)	11 (44%)	13 (52%)	0 (0%)	Agree	0 (0%)	1 (4%)	12 (48%)	12 (48%)	Agree	<0.001
Q4	1 (4%)	3 (12%)	21 (84%)	0 (0%)	Agree	0 (0%)	0 (0%)	14 (56%)	11 (44%)	Agree	<0.001
Q5	0 (0%)	4 (16%)	18 (72%)	3 (12%)	Agree	0 (0%)	1 (4%)	12 (48%)	12 (48%)	Agree	0.003
Q6	2 (8%)	12 (48%)	10 (40%)	1 (4%)	Disagree	0 (0%)	0 (0%)	11 (44%)	14 (56%)	Strongly Agree	<0.001
Q7	1 (4%)	8 (32%)	16 (64%)	0 (0%)	Agree	0 (0%)	0 (0%)	12 (48%)	13 (52%)	Strongly Agree	<0.001
Q8	0 (0%)	13 (52%)	10 (40%)	2 (8%)	Disagree	0 (0%)	2 (8%)	11 (44%)	12 (48%)	Agree	<0.001
Q9	0 (0%)	12 (48%)	10 (40%)	3 (12%)	Agree	0 (0%)	2 (8%)	10 (40%)	13 (52%)	Strongly Agree	<0.001
Q10	0 (0%)	6 (24%)	17 (68%)	2 (8%)	Agree	0 (0%)	1 (4%)	12 (48%)	12 (48%)	Agree	<0.001
Q11	0 (0%)	14 (56%)	10 (40%)	1 (4%)	Disagree	0 (0%)	1 (4%)	10 (40%)	14 (56%)	Strongly Agree	<0.001

Free-Text Thematic Analysis

Participants reported the interactive elements of the training program, particularly the patient simulations, were most effective in practical skills building ("the simulation exercise at the end was the best preparation", "Cases and discussing how to ask the pt what we can do to help and realizing what we do today affects future visits", "Hands-on practicing defensive maneuvers and simulations. These sims also felt much more real and relevant than past trainings"). Other training elements specifically highlighted as beneficial included the de-escalation mnemonic, the bias check process, and the hands-on defensive skills practicum ("Great self-defense practice, excellent instructors").

Several participants praised the interdisciplinary nature of the curriculum ("Interactive aspect + hearing from colleagues like police and security on their experiences is very helpful"). In general, participants felt that more simulation practice time ("Even more scenarios!", "I wish it was longer so we could do more scenarios") and specific training on how to lead an ED team debrief in real time ("Enabling more opportunity to practice team dynamic management + possibly how to lead a team debrief after") would improve the training.

Discussion

Our results suggest that staff may benefit from our simulation-based training in de-escalation to feel more comfortable managing agitated patients in the ED. Based on the quantitative survey results, participants particularly valued the training on trauma-informed care and self-defense skills. Although our results rely on participant self-evaluation, current

literature supports the utility of pre-post self-assessment in medical education.[27] Based on respondent free-text feedback, the self-defense skills workshop and the verbal de-escalation simulation were the two most useful components of our training. Participants commented on how realistic the scenarios were and commended the performance of the standardized patients.

Simulation-based training has emerged as one of the most effective tools in medical education, as it provides the ability to practice acquired skills hands-on and to receive immediate feedback.[28] By allowing ED staff to practice verbal de-escalation in a realistic but safe environment, they might be more likely to try using those skills in real life. Other studies have found simulation-based training to be effective for teaching trainees how to manage agitated patients. For example, a randomized controlled trial found that residents who simulated managing an agitated patient compared to a non-agitated patient had greater improvement in knowledge and performance in managing subsequent agitated patients.[29] Furthermore, in 2024, a systematic review of 25 studies found that healthcare workers who completed simulation-based training on managing aggressive patients "showed statistically significant improvements in knowledge and self-reported confidence". The authors noted that the magnitude of these improvements and impact on patient outcomes is still unknown.[30]

Our study not only adds to the existing literature regarding the use of simulation-based training in management of aggression, but it also adds to the growing literature around racial disparities in restraint use by showing how discussions about race and structural racism can be integrated into an interdisciplinary verbal de-escalation training. Participants specifically highlighted the use of standardized patients of color, which enhanced the debriefing sessions, as actors often shared their own perspectives and experiences with participants to provide additional context.

While participants reported improvement in their level of comfort across all domains, yet those who had over 5 years of experience reported less dramatic improvement in their pre- and post-intervention responses. This is expected, as providers with more experience may have already developed their own methodology for approaching agitated patients over time. Furthermore, this training was designed for learners with less experience as well as for clinical and non-clinical staff. More experienced staff members might require a workshop that is more tailored to their skills.

This integrated curriculum sought to balance the safety of ED staff with the avoidance of unnecessary restraint use and the mitigation of racial biases. AVADE® training emphasizes workplace safety, including the involvement of hospital security for the purposes of de-escalation and the use of physical restraints as a means of safety if needed. Our unbiased de-escalation training emphasizes the use of trauma-informed care in verbal de-escalation, highlights the role of systemic racism in upholding racial disparities in physical restraint use, and teaches the use of implicit bias self-checks. By implementing either of these trainings as a stand-alone, participants might have perceived their options as being at one of the extremes: to either liberally apply physical restraints whenever they felt unsafe for the sake of WPV prevention, or to never apply physical restraints out of fear of being perceived as racially biased.

Through training integration, we aimed to strike a balance between communicating the goal to eliminate racial disparities in restraint use while also empowering staff to apply physical restraints in the presence of an immediate threat when trauma-informed verbal de-escalation is either ineffective or impossible. By empowering ED staff with the skills to verbally de-escalate agitated patients, maintain non-confrontational body language, and employ empathic verbal and non-verbal communications while maintaining a safe distance and means of egress, they may be less likely to need to resort to physical restraint of patients who can be safely de-escalated otherwise. Our combined training acknowledges that physical restraints may be necessary in patients who cannot be successfully de-escalated and are presenting an immediate physical threat to themselves or others. The goal of our training is to encourage participants to pause, assess the safety of the situation, attempt verbal de-escalation, and check if their own biases are playing a role in their decision to restrain an agitated patient.

This training allows institutions to comply with The Joint Commission standards for hospital accreditation, which require annual training on WPV prevention. Annual repetition of this training—with iterative modifications based on feedback—might show a more sustained effect on retained skills and overall departmental practices. This training could potentially be scaled to external institutions seeking a balance between WPV prevention and reduction of unnecessary restraint use, as the case scenarios are common enough to be relevant in most EDs.

Funding might be a limiting factor for many institutions given the hourly cost of standardized patients. Participant costs could be mitigated by making this training mandatory for all staff members via institutional policies.

Limitations

Despite the gift card incentive, there was no departmental mandate to complete the training. Therefore, there may be a self-selection bias in favor of participants who already trend toward verbal de-escalation and a trauma-informed approach to care. Because of the limited participation and turnover across different clinical groups, it is difficult to ascertain the long-term impact of this intervention on overall departmental culture and practices, as well as on the overall prevalence of restraint use, racial disparities in physical restraint use, and WPV events. It's also challenging to directly evaluate how the training might have changed individual provider practices during real ED patient scenarios. Future research currently being planned within our department will evaluate the rate of physical restraint across the department in the post-training era.

Although participants reported an immediate increase in self-confidence across all domains, the duration of this is uncertain. Logistical issues including workforce turnover limited our ability to follow up with participants longitudinally regarding their self-perceived confidence. It should also be noted that self-reported measures, while valuable, have limitations including social desirability bias. This can lead to participants reporting a falsely increased sense of preparedness after the training and affect the reliability of our findings.

As mentioned previously, it should be noted that simulation requires a significant financial investment in the form of equipment and trained actors, as well as faculty training.[28] This might limit generalizability to other institutions that may not have the resources to invest in this kind of curricular development.

Conclusion

Simulation-based training can increase ED staff's self-reported confidence in managing agitated patients, performing a bias self-check, maintaining their own and others' safety, and using verbal de-escalation techniques. Further work is needed to assess how this type of training impacts clinical practice and whether it reduces unnecessary physical restraints and/or mitigates racial disparities in ED restraint use, and its impacts on the incidence of WPV.

Abbreviations

APP, advanced practice provider; AVADE, Awareness-Vigilance-Avoidance-Defense-Escape; ED, emergency department; EM, emergency medicine; MOAB, management of aggressive behavior; P&S, police and security; TJC, The Joint Commission; WPV, workplace violence.

Data Sharing Statement

All data used in this study was obtained via de-identified paper forms from participants and is securely stored in a locked facility. All requests for the original data should be submitted to the corresponding author.

Ethics Approval and Informed Consent

A full protocol of the current study was submitted for review to the Massachusetts General Hospital Institutional Review Board (Protocol No. 2021P002050) and determined to meet exemption criteria.

Consent for Publication

The authors of all materials presented in this article have consented to their publication.

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Disclosure

WLMK served on the Standards Review Panel for *The Joint Commission Workplace Violence Prevention Advisory Board* (Division of Healthcare Quality Evaluation, Department of Standards and Survey Methods) responsible for the revised 2022 workplace violence prevention standards. All other authors report no conflicts of interest in this work.

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