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Original Research

Informal Peer Support and Intentional Acts of Kindness May Attenuate the Impact of Work-Related Stressors on Compassion Satisfaction, Secondary Traumatic Stress, and Burnout of Emergency Medical Services Clinicians

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A B S T R A C T

Objective: Emergency medical services (EMS) Code Lavender was developed to support EMS clinicians after stressful events via consistent recognition of events, informal peer support, and intentional acts of kindness. This study evaluated changes in burnout screening tool responses of EMS clinicians in response to program implementation and the coincidental start of coronavirus disease 2019.

Methods: Anonymous surveys with demographic questions and 2 burnout screening tools were distributed before program implementation (spring 2020) and 20 months later (fall 2021). Analysis included *t*-tests, Fisher exact tests, and multivariable linear regression.

Results: Seventy-seven preprogram (59% response rate) and 108 intraprogram (88% response rate) survey responses were included. No changes existed between preprogram and intraprogram responses across all subscale scores. Sex was associated with depersonalization subscale scores, with men having scores 1.53 (95% confidence interval [CI] 0.11-2.95) higher than women. Compared with emergency medical technicians, paramedics had higher compassion satisfaction (OR 3.50; 95% CI 1.79-5.70) and personal accomplishment scores (OR 2.40; 95% CI 1.08-3.71). Transport nurses had higher personal accomplishment (OR 3.29; 95% CI 1.18-5.40), depersonalization (OR 3.73; 95% CI 1.19-6.26), and rates of burnout symptoms (OR 0.54; 95% CI 0.09-0.98) than emergency medical technicians.

Conclusion: The organizational commitment, peer support, and authentic leadership of EMS Code Lavender may attenuate work-related stressors among EMS clinicians.

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Role identity theory suggests that when an individual holds a specific role within society, the attributes of that role may become superimposed on the individual's personal characteristics and sense of self, especially if they find purpose and meaning in life by fulfilling their

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perceived expectations of that role.¹⁻⁶ Recent exploration of the role identity theory as it pertains to emergency medical services (EMS) clinicians has distilled paramedic role identity into 6 domains: caregiving, thrill seeking, duty, capacity, problem-solving, and protecting.¹⁻³ These domains of the paramedic role identity are bittersweet; they not only serve as a mechanism for attraction and retention within the profession, but they also act as sources of exposure to acute and chronic occupational stress.⁷ Acute, or critical incident, stress generally results from the provision of patient care when a "situation faced by an [EMS clinician] causes them to experience an unusually strong emotional reaction which has the potential to

interfere with their ability to function either at the scene or later.^{8,9} These situations often involve caring for a patient who has been badly beaten, encountering someone who is personally known by the EMS clinician, delivering a death notification, or responding to a multiple casualty incident.¹⁰ Chronic occupational stresses include the risk of exposure to infectious diseases, potential for injury or death from physical violence or vehicle-related incidents, insufficient salaries necessitating working extra hours, sleep deprivation, and the natural strain of shift work.^{11,12} Both acute and chronic work-related stress exposure have been associated with the development of posttraumatic stress symptomology^{9,11} and burnout^{13,14} and likely contribute to the significantly higher suicide mortality odds ratios of EMS clinicians compared with the general public.^{15,16}

Collectively, how one feels about their role as a helper (professional quality of life)¹⁷ involves both the positive, altruistic sentiments one feels regarding their work (compassion satisfaction) as well as the negative, more frustrated sentiments one may also feel (compassion fatigue). Compassion fatigue, or the “cost of caring” that comes from prolonged self-sacrifice and exposure to challenging situations, can be separated into secondary traumatic stress (vicarious trauma), which is stress from work-related secondary exposure as a witness to their patient’s trauma or tragedy, and burnout, which is a state of extreme physical and emotional exhaustion because of chronic work-related stressors that results in feeling hopeless, disconnected, or insensitive.^{10,17–19} The burnout response, as defined by Maslach and Leiter,¹⁹ is characterized by 3 key dimensions: “an overwhelming exhaustion (emotional exhaustion); feelings of cynicism and detachment from the job (depersonalization); and a sense of ineffectiveness and lack of personal accomplishment (lack of personal achievement).”

Before the additional chronic work-related stresses imposed by the coronavirus disease 2019 (COVID-19) pandemic, the percentage of EMS clinicians who screened positive for work-related burnout was estimated to be around 18% to 47%, with variation based on the screening tools used.^{3,13,20} Prepandemic, it was demonstrated that delivering death notifications^{21,22} and dependence on working extra hours²³ greatly increased EMS clinicians’ odds of work-related burnout. This burnout can then go on to be associated with higher rates of absenteeism,^{13,22} greater rates of intentions of leaving the EMS workforce,^{13,22,24} and increased self-reported rates of suicidal ideations.¹⁸

Given recent international recommendations against the use of 1-time critical incident stress debriefing sessions because of concerns that their rigid structure and potential for causing secondary traumatization may actually cause more harm than good,^{25–31} a new mechanism to support EMS clinicians experiencing acute and chronic stress was developed. As described elsewhere,^{32,33} the Stony Brook University Hospital EMS Code Lavender program is a process incorporated into standing operating procedures aimed at consistently recognizing, reaching out to, and supporting EMS clinicians after acute crisis events. The program promotes timely, nonintrusive, informal peer support and intentional acts of kindness with the ability to provide watchful waiting and stepwise support via mental health professionals familiar with the EMS profession when needed.³³ This program and the screening tools chosen to evaluate its possible impact and usage were conceived before the COVID-19 pandemic; the preplanned program start coincided with the first COVID-19 lockdowns in New York State.

Therefore, the objective of this study was to evaluate if EMS clinicians (emergency medical technicians [EMTs], paramedics, and transport nurses) experienced any meaningful changes in the subscale scores on the Professional Quality of Life (ProQOL-5) and abbreviated Maslach Burnout Inventory (aMBI) screening tools over an approximately 20-month span, which included both the launch of a program to support EMS clinicians through stressful events as well as the beginning of the COVID-19 pandemic. Although the results of this investigation could be interpreted as an early glimpse into the impact

the COVID-19 pandemic has had on EMS clinician work-related stress, we believe the COVID-19 pandemic more likely represents an exacerbation of the long-standing chronic occupational stresses already experienced by EMS clinicians, which will likely also persist long after the pandemic ends.

Methods

Study Design

This article is part of a prospective, observational study that was reviewed and approved by the Stony Brook University Institutional Review Board. As part of an overall aim to evaluate the impact and volume of the use of an EMS Code Lavender program, this arm of the study reports on the changes in self-reported compassion satisfaction, secondary traumatic stress, and burnout screening scores during the first 20 months of program implementation, which happened to coincide with the local start of the COVID-19 pandemic.

Population and Setting

This study was conducted with Stony Brook University Hospital EMS (SBEMS). Stony Brook University Hospital is a suburban, academic, level 1 trauma and tertiary care center with an annual emergency department (ED) census of approximately 110,000 patients. In addition to critical care interfacility transport, SBEMS provides 911 response to the surrounding county via ambulances, air medical helicopters, paramedic intercept vehicles, and mobile stroke units. SBEMS receives approximately 12,000 requests for service per year. At the time of the study, SBEMS staff consisted of approximately 20 EMTs and 80 paramedics supported by 5 EMS supervisors, 2 educators, 3 administrators, and 4 medical directors. There are approximately 20 transport nurses associated with SBEMS; nursing staff alternate their assignments between the ED, mobile stroke units, and critical care interfacility transport teams.

Measurements

The ProQOL-5 scale is a well-validated 30-item screening tool that measures the positive and negative effects those in helper professions experience after unusually stressful events and yields 3 subscale scores: compassion satisfaction, secondary traumatic stress, and burnout.^{17,34} To further characterize the different dimensions of burnout, the aMBI, another previously validated 9-item screening tool, was used to quantify emotional exhaustion, personal accomplishment, and depersonalization.^{35–38}

Preprogram surveys were distributed on paper and electronically via hospital e-mail in March 2020. The preprogram survey consisted of basic demographic questions (sex [male or female] and role [EMT, paramedic, or transport nurse]), the aMBI, and the ProQOL-5 scale modified such that the term “helper” was replaced with “EMS provider.”

Intraprogram surveys were distributed electronically via hospital e-mail and on paper during staff education days from September 2021 through January 2022. The intraprogram survey included the same questions as in the preprogram survey, with several added about the interactions with and impressions of the SBEMS Code Lavender program.

Analysis

Raw scores were calculated for each of the ProQOL-5 survey subscales.¹⁷ ProQOL-5 compassion satisfaction, secondary traumatic stress, and burnout subscale scores were categorized as “low” (score of 22 or less), “moderate” (scores between 23 and 41), or high (score of 42 or more) using cut points from the survey instrument manual.¹⁷ For the aMBI, raw scores were calculated for each of the emotional exhaustion, depersonalization, and personal accomplishment subscales (0–18 scale) and then categorized as “low,” “moderate,” and “high” (emotional exhaustion: < 7 low, 7–10 moderate, > 10 high; depersonalization: < 4 low, 4–6 moderate, > 6 high; personal

accomplishment: < 13 low, 13–14 moderate, > 14 high).^{35,39} Higher emotional exhaustion and depersonalization subscale scores suggest higher burnout symptom burden, whereas higher personal accomplishment subscale scores are considered protective against burnout.^{19,35,39} Subscales with incomplete responses were excluded.

Statistical analysis was performed using SPSS 27 (IBM Corp, Armonk, NY) with 2-tailed tests with $P < .05$ indicating statistical significance. Changes in screening tool response scores from the preprogram survey to the intraprogram survey were analyzed using independent sample *t*-tests and Fisher exact tests. Multivariable linear regression was used to identify whether the inclusion of sex (female or male) or role (EMT, paramedic, or transport nurse) of the participants had any influence on pre- versus intraprogram changes in scores and whether there were differences in scores by sex or role. Pre- versus intraprogram was included in all models; role and sex were only included if there was a significant result. All questionnaires were anonymous. Although there was some overlap between the pre- and intraprogram respondents, no matching could be done so the 2 samples were treated as independent.

Results

For the preprogram survey, 78 responses were collected with 1 excluded for a duplicate identifier, yielding an overall 59% response rate (17 [55%] EMTs, 50 [62%] paramedics, and 10 [56%] transport nurses). For the intraprogram survey, 114 responses were collected with 8 excluded (2 for no unique identifier completed and 6 for duplicate identifiers), yielding an overall 88% response rate (26 [96%] EMTs, 73 [92%] paramedics, and 7 [50%] transport nurses). **Table 1** describes trends in responses to demographic questions; there were no differences between respondents by sex ($P = .63$) or role ($P = .35$).

Table 1
Demographic Data for Survey Respondents

	Preprogram Survey (n = 77)	Intraprogram Survey (n = 106)	P Value
Cumulative Role			.35
EMT, n (%)	17 (22)	26 (24)	
Paramedic, n (%)	50 (65)	73 (69)	
Transport nurse, n (%)	10 (13)	7 (7)	
Sex			.63
Female, n (%)	26 (34)	32 (30)	
Male, n (%)	51 (66)	74 (70)	
Preplanned subgroups			
Role			
EMT			
Total, (n)	17	26	
Female, n (%)	4 (24)	7 (27)	
Male, n (%)	13 (76)	19 (73)	
Paramedic			
Total, (n)	50	73	
Female, n (%)	15 (30)	21 (29)	
Male, n (%)	35 (70)	52 (71)	
Transport nurse			
Total, (n)	10	7	
Female, n (%)	7 (70)	4 (57)	
Male, n (%)	3 (30)	3 (43)	
Sex			
Females			
Total, (n)	26	32	
EMT, n (%)	4 (15)	7 (22)	
Paramedic, n (%)	15 (58)	21 (65)	
Transport nurse, n (%)	7 (27)	4 (13)	
Males			
Total, (n)	51	74	
EMT, n (%)	13 (25)	19 (26)	
Paramedic, n (%)	35 (69)	52 (70)	
Transport nurse, n (%)	3 (6)	3 (4)	

EMT = emergency medical technician.
There were no differences between respondents by sex or role.

Table 2
Trends in Participant Responses on the Professional Quality of Life Screening Tools

	Preprogram Survey (n = 77)	Intraprogram Survey (n = 106)	P Value
Compassion satisfaction subscale scores			
Mean ± SD	37.2 ± 6.0	36.7 ± 6.7	.62
Level of compassion satisfaction, n (%)			.38
Low (scores < 23)	0	0	
Moderate (scores from 23–41)	58 (75)	81 (76)	
High (scores > 41)	19 (25)	20 (19)	
Missing/incomplete, n (%)	0	5 (5)	
Secondary traumatic stress subscale scores			
Mean ± SD	22.7 ± 6.8	21.6 ± 5.8	.22
Level of secondary traumatic stress, n (%)			.10
Low (scores < 23)	39 (50)	61 (57)	
Moderate (scores from 23–41)	36 (47)	38 (36)	
High (scores > 41)	2 (3)	0	
Missing/incomplete, n (%)	0	7 (7)	
Burnout subscale scores			
Mean ± SD	25.9 ± 6.4	26.0 ± 6.7	.98
Level of burnout, n (%)			.67
Low (scores < 23)	24 (31)	31 (29)	
Moderate (scores from 23–41)	52 (68)	69 (65)	
High (scores > 41)	1 (1)	0	
Missing/incomplete, n (%)	0	7 (6)	

SD = standard deviation.
There were no significant differences in changes in responses from preprogram to intraprogram screening tool subscale scores, either as means or as categoric values (low, moderate, and high).

Table 2 describes trends in responses to the ProQOL-5 screening tool. There were no significant differences in changes in responses from preprogram to intraprogram screening tools, either as means or as categoric values (low, moderate, and high).

Table 3
Trends in Participant Responses on the Abbreviated Maslach Burnout Inventory Screening Tool

	Preprogram Survey (n = 77)	Intraprogram Survey (n = 106)	P Value
Emotional exhaustion subscale score			
Mean ± SD	7.7 ± 4.4	8.1 ± 4.8	.56
Level of burnout, n (%)			.69
Low (scores < 7)	35 (45)	43 (40)	
Moderate (scores from 7–10)	20 (26)	23 (22)	
High (scores > 10)	22 (29)	35 (33)	
Missing/incomplete, n (%)	0	5 (5)	
Depersonalization subscale score			
Mean ± SD	5.0 ± 4.3	4.5 ± 4.6	.43
Level of burnout, n (%)			.49
Low (scores < 4)	35 (46)	54 (51)	
Moderate (scores from 4–6)	18 (23)	22 (20)	
High (scores > 6)	24 (31)	24 (23)	
Missing/incomplete, n (%)	0	6 (6)	
Personal accomplishment subscale score			
Mean ± SD	12.5 ± 3.9	12.2 ± 3.8	.61
Level of burnout, n (%)			.83
Low (scores < 13)	38 (49)	48 (45)	
Moderate (scores from 13–14)	14 (18)	22 (21)	
High (scores > 14)	25 (33)	30 (28)	
Missing/incomplete, n (%)	0	6 (6)	
Number of burnout symptoms at risk for			
Mean ± SD	0.60 ± 0.82	0.57 ± 0.77	.80
At risk for 1 symptom of burnout, n (%)	30 (39)	41 (39)	.54
At risk for 2 symptoms of burnout, n (%)	16 (21)	18 (17)	.34

SD = standard deviation.
Being at risk for a burnout symptom is characterized as a high depersonalization score or a high emotional exhaustion score.³⁹ There were no significant differences in changes in responses from preprogram to intraprogram screening tool subscale scores, either as means or as categoric values (low, moderate, and high).

Table 4
Subscale Scores by Sex and Role on the Preprogram Screening Tool Responses

Subscale Score	Sex		Role		
	Female (n = 26)	Male (n = 51)	EMT (n = 17)	Paramedic (n = 50)	Transport Nurse (n = 10)
Compassion satisfaction (ProQOL-5)	37.9 ± 6.5	36.9 ± 5.8	35.8 ± 5.3	37.5 ± 6.3	38.1 ± 5.6
Secondary traumatic stress (ProQOL-5)	23.2 ± 6.3	22.5 ± 7.1	22.3 ± 6.6	23.3 ± 7.2	20.6 ± 5.1
Burnout (ProQOL-5)	25.6 ± 7.2	26.1 ± 6.0	25.2 ± 6.1	26.5 ± 6.8	24.5 ± 5.1
Emotional exhaustion (aMBI)	7.9 ± 4.0	7.6 ± 4.6	6.7 ± 3.7	7.6 ± 4.4	9.9 ± 5.3
Depersonalization (aMBI)	4.9 ± 4.3	5.1 ± 4.3	4.0 ± 3.5	4.9 ± 4.1	7.3 ± 6.0
Personal accomplishment (aMBI)	12.7 ± 0.8	12.4 ± 0.5	10.7 ± 4.5	12.9 ± 3.5	13.5 ± 3.8
Number of burnout symptoms at risk for	0.6 ± 0.8	0.6 ± 0.8	0.4 ± 0.7	0.6 ± 0.8	1.0 ± 0.9

Values are reported as mean ± standard deviation.

aMBI = abbreviated Maslach Burnout Inventory; EMT = emergency medical technician; ProQOL-5 = Professional Quality of Life.

Table 3 describes trends in response to the aMBI screening tool. There were no significant differences in changes in responses from preprogram to intraprogram screening tools, either as means or as categoric values (low, moderate, and high). Subscale scores by sex and role on the preprogram and intraprogram screening tool responses are reported in **Tables 4** and **5**, respectively.

As indicated by multivariable linear regression (**Table 6**), pre- versus intraprogram screening tool subscale scores remained similar even after adjusting for sex and EMS clinician role. EMS clinician role was related to the personal accomplishment subscale score, with transport nurses reporting the highest personal accomplishment scores followed by paramedics. EMS clinician role and sex were related to the depersonalization subscale score, with transport nurses reporting significantly higher depersonalization subscale scores than EMTs and paramedics, and men reporting higher scores than women. EMS transport nurses had higher numbers of burnout symptoms than paramedics and EMTs. Paramedics reported significantly higher compassion satisfaction subscale scores than EMTs.

Discussion

The initial premise of this investigation was to observe the possible impact of the implementation of the EMS Code Lavender program on the self-reported compassion satisfaction, secondary traumatic stress, and burnout levels of EMS clinicians within a hospital-based EMS agency in suburban New York.³³ The outbreak of the COVID-19 pandemic in the United States coincidentally lined up with the pre-planned program launch date, which likely represents an exacerbation of the long-standing chronic work-related stress endured by EMS clinicians.

The preprogram self-reported compassion satisfaction, secondary traumatic stress, and burnout subscale scores of our cohort were similar to those of EMS clinicians in North Carolina,^{18,40} paramedics in Canada,³ and other ED nurses.^{41,42} However, when drilling down on the different dimensions of burnout, the self-reported preprogram

emotional exhaustion, depersonalization, and personal accomplishment subscale scores of our EMS clinicians, as represented by categoric values, are somewhat dissimilar to those reported by other EMS clinicians. For example, compared with a study in Minnesota that used the 22-item Maslach Burnout Inventory - Human Services Study (MBI-HSS), our cohort indicated a higher percentage of respondents at risk for at least 1 symptom of burnout, which is subsequently explained by a higher percentage of SBEMS respondents within the high category on the emotional exhaustion subscale score and a higher percentage of SBEMS respondents within the high category on the depersonalization subscale score.²⁰ Interestingly, a higher percentage of SBEMS respondents scored within the high category on the personal accomplishment subscale score, which is considered to be protective against burnout symptomatology.²⁰ These differences may be attributed to the inclusion of transport nurses in the SBEMS cohort, a role not included in the Minnesota cohort, because the SBEMS transport nurses tended to have higher scores on those 4 metrics. A study published in 2007 screened ED nurses from across the United States using the MBI-HSS, which only reported the mean subscale scores and not categoric percentages and thus is not able to be reasonably compared directly with our results.⁴³ However, it is important to note that the mean subscale scores in the national nursing population were higher than in the Minnesota EMS population for emotional exhaustion and depersonalization, with similar personal accomplishment scores.^{20,43}

When taken in aggregate before any subset analysis based on respondent sex or role, there were no statistically significant changes in responses from preprogram to intraprogram screening tools, either as means or categoric values, across all subscale scores. Given that other studies have suggested that health care professionals with high cumulative exposure of caring for patients with COVID-19 are at higher risk of stress, anxiety, depression, burnout, and secondary traumatic stress compared with those with lower cumulative exposure⁴⁴ and that maladaptive cognitions have already been observed

Table 5
Subscale Scores by Sex and Role on the Intraprogram Screening Tool Responses

Subscale Score	Sex		Role		
	Female (n = 32)	Male (n = 74)	EMT (n = 26)	Paramedic (n = 73)	Transport Nurse (n = 7)
Compassion satisfaction (ProQOL-5)	38.2 ± 6.2	36.1 ± 6.8	33.4 ± 5.5	38.0 ± 6.7	37.0 ± 7.5
Secondary traumatic stress (ProQOL-5)	21.9 ± 7.0	21.4 ± 5.2	21.6 ± 6.9	21.8 ± 5.5	19.3 ± 4.2
Burnout (ProQOL-5)	24.8 ± 7.3	26.5 ± 6.4	26.5 ± 6.5	25.9 ± 6.8	24.0 ± 7.4
Emotional exhaustion (aMBI)	8.4 ± 4.5	8.0 ± 5.0	8.6 ± 4.3	7.8 ± 4.8	9.6 ± 6.6
Depersonalization (aMBI)	3.3 ± 3.3	5.0 ± 4.9	4.5 ± 3.9	4.1 ± 4.3	7.9 ± 7.7
Personal accomplishment (aMBI)	12.9 ± 3.3	11.9 ± 4.0	10.2 ± 4.0	12.7 ± 3.6	14.0 ± 2.7
Number of burnout symptoms at risk for	0.5 ± 0.7	0.6 ± 0.8	0.5 ± 0.8	0.5 ± 0.8	1.0 ± 1.0

Values are reported as mean ± standard deviation.

aMBI = abbreviated Maslach Burnout Inventory; EMT = emergency medical technician; ProQOL-5 = Professional Quality of Life.

Table 6
Multivariable Model Results

Predictor	Effect	95% CI	P Value
Compassion satisfaction subscale score (ProQOL-5)			
Preprogram	Reference		
Intraprogram	−0.36	−2.25 to 1.52	.70
Role			
EMT	Reference		
Paramedic	3.50	1.29–5.70	.002
Transport nurse	3.30	−0.35 to 6.95	.08
Personal accomplishment subscale score (aMBI)			
Preprogram	Reference		
Intraprogram	−0.17	−1.29 to 0.94	.76
Role			
EMT	Reference		
Paramedic	2.40	1.08–3.71	<.001
Transport nurse	3.29	1.18–5.40	.002
Depersonalization Subscale Score (aMBI)			
Preprogram	Reference		
Intraprogram	−0.38	−1.68 to 0.93	.57
Role			
EMT	Reference		
Paramedic	0.17	−1.38 to 1.72	.83
Transport nurse	3.73	1.19–6.26	.004
Sex			
Female	Reference		
Male	1.53	0.11–2.95	.04
No. of burnout symptoms respondent at risk for			
Preprogram	Reference		
Intraprogram	0	−0.23 to 0.23	1.00
Role			
EMT	Reference		
Paramedic	0.10	−0.18 to 0.37	.49
Transport nurse	0.54	0.09–0.98	.02

aMBI = abbreviated Maslach Burnout Inventory; CI = confidence interval; EMT = emergency medical technician; ProQOL-5 = Professional Quality of Life.

in EMS clinicians in North Carolina as a result of the pandemic,⁴⁵ we expected to see a rise in burnout symptomology within our cohort, especially given our COVID-19 patient volume in the beginning of the pandemic. The absence of this expected rise could be due to it being too early to detect the psychological impact of the pandemic, although previous studies have detected a negative change in the burnout dimensions of EMS clinicians who have experienced a distressing critical incident within the prior 6 months.¹⁴ However, we more likely believe that the absence of the expected increase in work-related burnout in response to the exacerbation of chronic work-related stressors invoked by the COVID-19 pandemic may suggest the implementation of the EMS Code Lavender program may have attenuated some degree of the psychological impact of the pandemic on EMS clinicians. A core tenant in the program is the consistent, intentional, visible support of EMS clinicians by supervisors and medical directors, which was not possible without a strong organizational commitment to the program's mission.³³ Studies before and during the pandemic have demonstrated that clinician perception of supportive and authentic leadership along with strong work relationships are associated with increased compassion satisfaction and reduced secondary traumatic stress and burnout.^{46–51} It has also been observed that clinicians who cared for patients with COVID-19 were more likely to engage in psychological support than clinicians who did not care for this population of patients⁴⁴ and that qualitatively EMS clinicians have found seeking social support, practicing self-care, and finding purpose in their work as being protective against the impact of pandemic-related stress.⁵²

When looking at the impact of other similar initiatives, either in the form of in-hospital Code Lavender programs³⁴ or out-of-hospital peer support and mindfulness programs,^{48,51} our results are not

dissimilar. One air medical EMS agency in the Southeastern United States piloted a peer support program and observed no significant differences in ProQOL-5 subscale scores on surveys administered before program launch and 16 months into the pilot program running. However, unlike ours, they were able to better track if respondents had experienced stressful or emotionally challenging transports. Thus, they were able to suggest that because there was no significant difference in subscale scores depending on if respondents had experienced a difficult call and thus the pilot program intervention, the pilot peer support program was likely beneficial.⁴⁸ Additionally, a mindfulness intervention program for prehospital clinicians in Paris demonstrated not only a positive, sustained impact on ProQOL-5 subscale scores of those participating in the intervention but also an indirect positive impact on those not participating in the intervention.⁵¹ This was likely caused by a placebo-like effect of the act of implementing an institutional approach to caring for staff, which suggests program benefit to the agency as a whole.⁵¹ Finally, it is important to point out that EMS Code Lavender is not intended to reduce the frequency of stressful or distressing events EMS clinicians find themselves in but rather is focused on responding to such events consistently with intentional acts of kindness and peer support.^{33,34}

Across regression models, respondent sex was a characteristic that was significantly associated only with depersonalization subscale scores, with men having higher subscale scores than women. It is challenging to interpret this in the context of other recent literature because many studies report no significant association between sex and depersonalization subscale scores in their cohorts.^{53–55} A report with a specific focus on the role of sex on burnout of health care professionals suggests that men and women may reach burnout levels differently, women more so via high emotional exhaustion and men more so via high depersonalization.⁵⁶ This suggests a need exists within our cohort to investigate strategies aimed at specifically reducing the factors associated with depersonalization or encouraging strategies to mitigate its impacts.

Across regression models, respondent role was a characteristic significantly associated with compassion satisfaction, personal accomplishment, and depersonalization subscale scores, the latter of which mirrored the number of burnout symptoms the respondent is at risk for. In terms of subscales that are protective, respondent role was significantly associated with compassion satisfaction subscale scores, with the paramedic role most strongly associated with a higher score. This may suggest that despite the numerous stresses imposed by the pandemic, paramedics continued to find positive resonance with their role identity. Additionally, appropriate staffing levels, meaningful recognition, peer support, and genuine leadership have been suggested as ways to strengthen protective mechanisms to reduce burnout symptomology.^{47,50}

Finally, respondent role was significantly associated with personal accomplishment subscale scores, with the transport nurse role most strongly associated with a higher score. This is in line with other investigations that have suggested that a sense of personal achievement may be associated with the duration of professional service as well as higher levels of training.⁵⁷

Limitations

It is crucial to acknowledge that these results are reflective of a single EMS agency and that many EMS clinicians within our agency hold multiple jobs with other EMS agencies. Program engagement was most likely positively impacted by the COVID-19 pandemic. Some degree of Hawthorne effect may be at play as well as response bias; however, given the overall response rates, we believe this sample to be reasonably representative. As a result of the exquisite sensitivity of mental health, certain demographics (experience, race, ethnicity, and education level) were not collected because they could have been used to identify respondents. We hope this encouraged

more truthful responses because results are dependent on respondents' willingness to answer honestly. Additionally, although the aMBI has been validated for health care professionals, the 22-item full Maslach Burnout Inventory is considered the gold standard for screening burnout, and the aMBI may overestimate the rates of burnout.^{35,58} The aMBI was intentionally selected to keep the surveys short, hopefully increasing compliance with completing all the questions. Finally, no control group was included because we believed that would have been ethically challenging and unfair to our colleagues.

Conclusions

An EMS Code Lavender program may be a possible solution for EMS agencies that are exploring new ways to support EMS clinicians who are experiencing acute and chronic occupational stress.³³ Preliminary data suggest that the organizational commitment, peer support, and authentic leadership integral to the implementation of an EMS Code Lavender program may help to attenuate work-related stressors experienced by EMS clinicians. Additional investigation is needed to further characterize the relationship between these stressors, the different facets of the EMS Code Lavender program, and the resulting EMS clinician long-term well-being.

CRedit authorship contribution statement

Lauren M. Maloney: Conceptualization, Study design, Data collection, Data analysis, Writing—Original draft preparation, Writing—Reviewing. **Jason Hoffman:** Conceptualization, Study design, Data collection, Data analysis. **Edder Peralta:** Conceptualization, Study design, Data collection, Data analysis. **Rudolph Princi:** Conceptualization, Study design, Data collection, Data analysis. **Henry C. Thode Jr:** Data analysis. **Christopher DiDonato:** Data collection. **Anthony LaBarbera:** Data collection. **Sarah Williams:** Conceptualization, Study design, Data collection.

Declaration of Competing Interest

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