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Adaptive Strategies for Regulating Emotions May Help Avert Burnout Among Emergency Healthcare Workers: An Exploratory Investigation

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Abstract

Professionals working in emergency departments (EDs) are frequently exposed to intense physical, psychological, and emotional demands, placing them at elevated risk for burnout. This condition, rooted in long-term occupational stress, not only compromises the health of ED staff but also undermines the healthcare system and negatively affects patient outcomes. Utilizing adaptive emotion regulation strategies (ERS) is essential for managing the pressures of clinical environments and minimizing burnout risks. Strong interpersonal dynamics between patients and healthcare workers—particularly those grounded in empathy—can boost patient adherence and improve treatment results. This exploratory, cross-sectional study seeks to analyze how mental distress, burnout, and both adaptive and maladaptive ERS are interrelated among ED healthcare personnel. A total of 159 emergency healthcare professionals completed an online questionnaire. The Cognitive Emotion Regulation Questionnaire was used to measure emotion regulation approaches. Levels of burnout and psychological distress were evaluated through the Maslach Burnout Inventory and the Depression, Anxiety, and Stress Scale (DASS). The study revealed that over 20% of respondents exhibited high levels of stress (N = 35), anxiety (N = 36), and depression (N = 31). Only a small fraction—10.7% (N = 27)—showed no signs of burnout. Despite these concerns, the overwhelming majority (91.8%, N = 146) predominantly used adaptive ERS. However, as burnout intensified, reliance on adaptive strategies declined while maladaptive strategies became more prominent. Regression models pinpointed several key predictors of burnout dimensions—Emotional Exhaustion (EE), Depersonalisation (DP), and reduced Personal Accomplishment (PA)—including factors like gender, age, physical activity, smoking habits, sedative use, mental health status (stress and depression), maladaptive ERS, and adaptive strategies such as positive reappraisal. This study underscores the critical importance of addressing burnout, mental strain, and workplace stress in emergency healthcare settings. Strengthening the use of adaptive emotion regulation strategies and fostering a healthier work culture could reduce burnout and promote psychological resilience among ED staff, ultimately leading to better outcomes for both professionals and patients.

Keywords: Mental distress, Burnout, Emergency department, Emotion regulation

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Introduction

Workplace stress and burnout—particularly common in helping professions—can lead to a range of adverse outcomes, such as diminished job satisfaction, decreased efficiency, deteriorated employee well-being, increased absenteeism, and higher staff turnover [1]. Among healthcare professionals in acute care settings, anxiety and

depression are frequently reported mental health challenges. Psychosocial distress is prevalent in 30% to 52% of individuals, especially those working in environments with limited perceived control, such as emergency departments. In these high-pressure settings, the intense workload and the critical nature of medical cases further heighten stress levels among physicians [2]. Sustained exposure to stress may result in both physical and psychological disorders, ultimately compromising professional dedication and job performance. This may also give rise to maladaptive coping strategies, including substance abuse [3], and the development of physical ailments such as cardiovascular, musculoskeletal, and metabolic disorders [4]. The repercussions of declining mental health among healthcare staff directly influence the quality and safety of care provided to patients [4].

Burnout is described as a chronic and enduring reaction to emotional and interpersonal pressures in the workplace. It comprises three core elements: emotional exhaustion, depersonalisation (or cynicism), and a diminished sense of personal efficacy [5, 6]. This syndrome poses a considerable occupational risk across many fields, with heightened vulnerability observed in roles requiring regular interpersonal interaction. Healthcare providers are especially at risk [5, 6]. Emotional exhaustion in this group often leads to a decline in empathy and a tendency to depersonalise patients. Conversely, empathetic communication has been shown to promote more comprehensive symptom disclosure, which can enhance diagnostic precision. It also supports improved patient adherence and satisfaction, while helping to reduce the frequency and intensity of common health issues [7]. In this context, emergency department (ED) staff hold a crucial role. Burnout among professionals in emergency care settings has garnered considerable research attention in recent years. A multicenter cross-sectional study reported a burnout prevalence rate of 34.6% among emergency department personnel [8]. Another study found a lower rate (19.3%) among emergency physicians, but similar levels among paramedics [9]. A systematic review and meta-analysis assessing the three burnout dimensions reported pooled prevalence estimates of 40% for emotional exhaustion, 41% for depersonalisation, and 35% for reduced personal accomplishment [10].

Burnout frequently stems from prolonged work-related stressors, such as insufficient time to deliver adequate care and overwhelming workloads, which hinder an individual's capacity to manage and respond effectively to occupational demands [11]. Therefore, the use of adaptive emotion regulation strategies (ERS)—which involve fostering and sustaining positive emotional experiences while preventing intense negative emotions—is essential for addressing stress in healthcare settings and minimizing burnout risk [11-13]. For the purpose of this study, emotion regulation refers to the conscious and unconscious mechanisms through which individuals can alter the quality, strength, and duration of their emotional responses [14]. Adaptive cognitive strategies, like shifting attention positively or adopting another's perspective, contribute to emotional adjustment and situational coping. Conversely, maladaptive strategies, such as rumination and self-blame, are closely linked to the onset and persistence of dysfunctional stress responses [15].

A growing body of research has explored the association between emotion regulation and burnout among healthcare professionals [13, 16, 17]. Findings from these studies generally highlight that high emotional and psychological strain adversely affects healthcare workers' empathy, job effectiveness, interactions with patients, and personal wellbeing. Emergency department (ED) personnel, including physicians [18] and nurses [19], are particularly vulnerable due to the unpredictability of their work environment and the frequent exposure to critical, life-threatening cases. Furthermore, ED staff often face verbal and physical aggression from patients, making them even more susceptible to emotional strain [11, 16, 17].

In recent years, heightened attention has been given to the psychological impact on ED professionals, especially in the wake of the COVID-19 pandemic, which placed significant demands on those involved in acute care [20–24]. Research indicates that the rates of depression, anxiety, and burnout among these workers rose sharply during the pandemic compared to earlier periods [25]. A systematic review reported burnout prevalences of 39%, 43%, and 36% across the three main dimensions, with an overall burnout rate of 43%, reflecting a notable increase from pre-pandemic levels [26].

Gender-based differences in burnout have also been widely studied over the past few decades. Several studies suggest that women are generally more susceptible to burnout than men [6, 27, 28], a trend also observed within healthcare settings [29, 30]. Specifically, women are more prone to emotional exhaustion, whereas men tend to exhibit higher rates of depersonalisation [27, 31].

In our research, we examined the link between mental distress, burnout, and the use of both adaptive and maladaptive ERS among healthcare professionals in an emergency department. Mental distress encompasses a variety of elements and is typically measured using indicators such as symptoms of stress, anxiety, and depression. To assess these, we employed well-established international scales [32–34]. Our hypotheses are twofold: (1) that the prevalence of mental distress and burnout among emergency department staff aligns with global data, with at least half of participants presenting symptoms of depression and burnout; and (2) that elevated levels of stress, anxiety, and depression are associated with

increased burnout risk, while adaptive emotion regulation strategies may play a protective role.

Materials and Methods

This study adopted an exploratory cross-sectional design to evaluate how occupational stress and emotion regulation contribute to burnout among emergency department personnel. The study population consisted of a non-random convenience sample of 159 healthcare staff members employed at the emergency department in Pécs. Data collection was conducted through an online survey administered via Google Forms from October 2021 to February 2022, under the Department of Emergency Medicine at the Medical School in Pécs.

To determine the necessary sample size, the RaoSoft® sample size calculator (accessible at www.raosoft.com/samplesize.html) was employed, using a target population of approximately 200 individuals, which included all staff and medical students affiliated with the emergency department at the time. Using a 95% confidence level and a 5% margin of error, the minimum required number of participants was calculated to be 132. All employees aged 18 or older, regardless of job title or function, were invited to take part. Only surveys with complete responses were included, and no incomplete entries were recorded.

The online questionnaire was divided into several sections. The first part collected background information such as demographic characteristics and lifestyle habits. This was followed by three standardized and validated instruments for psychological assessment. Participation was entirely voluntary and anonymous, with all responses intended strictly for research use. Informed consent was obtained from all participants. The study protocol received ethical clearance from the Regional Research Ethics Committee of the University of Pécs Clinical Centre and was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (Ethics approval number: 8904 – PTE 2021).

Demographic data included questions on gender, age, professional area, and secondary employment. Lifestyle factors assessed included exercise habits, smoking status, alcohol intake, and the use of sedative medications.

The Cognitive Emotion Regulation Questionnaire (CERQ) was designed to assess nine distinct cognitive coping strategies believed to influence various emotional disorders. These strategies are divided into adaptive types—such as acceptance, planning, positive refocusing, perspective taking, and positive reappraisal—and maladaptive types, including rumination, self-blame, blaming others, and catastrophising. The CERQ is a self-administered tool composed of 36 items grouped into nine subscales corresponding to these strategies. Each subscale contains four statements, which participants rate on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always), reflecting how typical each statement is for them in different stressful situations. Besides evaluating the individual subscales, the questionnaire also allows for summing scores across adaptive and maladaptive strategies, as well as generating an overall score [15]. The Hungarian adaptation of the CERQ has been validated as a reliable measure for assessing cognitive emotion regulation strategies [35].

Burnout was assessed using the Maslach Burnout Inventory for Human Services Survey (MBI-HSS). Participants rate how frequently they experience specific feelings related to their work on a seven-point Likert scale from 0 (never) to 6 (every day) [36]. The inventory consists of three subscales—Emotional Exhaustion, Depersonalisation, and Personal Accomplishment—which are treated independently, as each dimension may vary regardless of the others. The 19-item Hungarian version of the MBI-HSS has demonstrated reliability and validity for measuring burnout among physicians and is suitable for human services professionals [37]. Following widely accepted burnout cut-off points for healthcare workers, we adopted the criteria proposed by Tang *et al.* (2022), where burnout is indicated by an Emotional Exhaustion score ≥ 27, Depersonalisation score ≥ 10, and/or a Personal Accomplishment score ≤ 33. In this study, participants meeting at least two of these criteria were classified as experiencing burnout [38].

The Depression Anxiety Stress Scales (DASS), developed by Lovibond and Lovibond [39], include three self-report scales that measure related negative emotional states: depression, anxiety, and stress. The original DASS consists of 42 items divided equally into three subscales of 14 items each, assessing symptoms based on emotions experienced during the preceding week. This instrument effectively captures overall mental distress. Participants rate each item on a four-point Likert scale from 0 (not at all typical) to 3 (highly or very often typical). A shortened 21-item version, also created by the original authors, contains seven items per subscale, with scores doubled to maintain comparability with the original version [40]. For this study, the Hungarian short form of the DASS was utilized [41].

Each of the questionnaires employed in this study demonstrated acceptable reliability, with Cronbach's alpha (Crα) values ranging as follows: CERQ between 0.77 and 0.83, MBI between 0.74 and 0.92, and DASS between 0.82 and 0.91. Data analysis was performed using IBM SPSS Statistics 26 for Windows. The Kolmogorov-Smirnov test was utilized to assess the normality of score distributions from the validated instruments. Our findings indicated that all questionnaire scores (CERQ Adaptive and Maladaptive Strategies, MBI-HSS, and DASS-21) were normally distributed within the sample.

Consequently, parametric tests were applied for statistical analysis. Descriptive statistics, linear regression models, and ANOVA were generated using the software.

Results and Discussion

A total of 159 participants completed the survey, with men comprising 17% (N = 27) and women 83% (N = 132) of the sample. **Table 1** presents the demographic characteristics. The respondents included doctors, paramedics, nurses, paramedical assistants, nursing staff, and other personnel such as assistants, medical secretaries, and medical students working in emergency departments. The average age of participants was 38.5 years (± 11.2), ranging from 20 to 69 years old.

Table 1. Demogrpahic characteristics of the sample (N = 159)

Variables	Group	Frequency	Percent (%)
Gender	Male	27	17
	Female	132	83
Job type	Physician	25	15.7
	Paramedic	18	11.3
	Nurse	83	52.2
	Medical student	7	4.4
	Other	26	16.4
Second job	Yes	45	28.3
	No	114	71.7
Exercise	Yes	55	34.6
	No	104	65.4
Smoking	Yes	69	43.4
	No	90	56.6
Regular alcohol*	Yes	8	5.0
	No	151	95.0
Tranquilisers	Yes	12	7.5
	No	147	92.5

*At least one drink per day

In our study, the participant distribution included 4.4 percent (N = 7) medical students, 15.7 percent (N = 25) physicians, 52.2 percent (N = 83) nurses, 11.3 percent (N = 18) paramedics, and 16.4 percent (N = 26) individuals employed in other roles **(Tables 1 and 4)**. Additionally, 28.3 percent (N = 45) reported having a second job alongside their emergency department duties. Regarding lifestyle factors, 43.4 percent (N = 69) of participants were smokers, 7.5 percent (N = 12) used tranquillisers, and 5 percent (N = 8) regularly consumed alcohol (at least one drink daily). Moreover, 34.5 percent (N = 55) engaged in regular physical activity.

Among the emergency department staff who completed the survey, 52.2 percent (N = 83) showed at least mild stress symptoms, with 22 percent (N = 35) experiencing severe stress. Anxiety symptoms were present in 46.5 percent (N = 74) of participants, and severe anxiety was reported by 22.6 percent (N = 36). Depressive symptoms affected 42.8 percent (N = 68) of the sample, with 19.5 percent (N = 31) meeting the criteria for severe depression. In terms of burnout, only 10.7 percent (N = 27) of respondents showed no signs, whereas 50.3 percent (N = 80) experienced burnout in at least one dimension. Burnout affecting two dimensions was observed in 17% (N = 27), and 22 percent (N = 35) exhibited burnout across all three dimensions. The lowest prevalence of burnout symptoms was found in emotional exhaustion (29.6 percent, N = 47), followed by depersonalisation (35.2 percent, N = 56), while reduced personal accomplishment showed the highest rate at 86.2 percent (N = 137) **(Tables 2 and 3)**. Gender differences in burnout were minimal, with approximately half of female participants (50 percent, N = 66) and male participants (51.9 percent, N = 14) experiencing burnout in at least one dimension **(Tables 1 and 5)**.

Table 2. Distribution of burnout dimensions and severity in the sample (n = 159) (BU: burnout)

Burnout dimension	BU in one dimension n (%)	BU in two dimension n (%)	BU in three dimension n (%)	Sum n (%)	$\chi 2$	P	η
Emotional exhaustion	1 (2)	11 (23)	35 (75)	47 (29.6)	122.95	< 0.001	0.88
Depersonalisation	3 (5)	18 (32)	35 (63)	56 (35.2)	120.06	< 0.001	0.87
Personal accomplishment	76 (56)	26 (19)	35 (26)	137 (86.2)	104.08	< 0.001	0.87

Table 3. Distribution of burnout dimensions and severity based on negative affect reaching mild level or higher

Negative affects (raeching mild level or higher)	No BU n (severe) % severe	BU in one dimension n (severe) % (severe)	BU in two dimension n (severe) % (severe)	BU in three dimension n (severe) % (severe)	Sum n (severe), % (severe)	$\chi 2$	P	η
Depression	2 (0) 1.3 (0)	22 (7) 13.8 (4.4)	15 (6) 9.4 (3.7)	29 (18) 18.2 (11.3)	68 (31), 42.8 (19.5)	49.66	< 0.001	0.53
Anxiety	4 (1) 2.5 (0.6)	29 (13) 18.2 (8.1)	17 (6) 10.7 (3.7)	24 (16) 15.1 (10.1)	74(36), 46.5 (22.6)	26.21	< 0.01	0.35
Stress	3 (2) 1.9 (1.3)	29 (8) 18.2 (5.0)	19 (4) 11.9 (2.5)	32 (4) 20.1 (2.5)	83(35), 52.2 (22)	74.32	< 0.001	0.57

Table 4. Means and standard deviations of MBI*, CERQ** and DASS*** dimensions by job positions (N = 159)

mean (SD)	Physicians	Paramedics	Nurses	Medical students	Others
MBI					
Emotional exhaustion	26.08 (12.086)	18.61 (13.285)	20.87 (11.495)	22 (5.972)	17.75 (10.918)
Depersonalisation	8.52 (6.292)	8.11 (5.860)	7.67 (5.700)	8.71 (5.122)	7.92 (6.945)
Lack of personal accomplishment	28.88 (7.091)	22.33 (8.878)	24.88 (7.020)	25.14 (10.286)	25.88 (7.596)
CERQ					
Adaptive Strategies	71.32 (11.68)	67.33 (11.911)	69.63 (13.284)	73.14 (16.232)	70.69 (12.129)
Maladaptive Strategies	39.20 (8.563)	36.87 (10.163)	38.61 (10.061)	42.29 (10.291)	38.46 (12.170)
DASS					
Depression	5.92 (5.773)	5.11 (5.476)	4.82 (5.092)	8.86 (7.267)	5.81 (5.254)
Anxiety	4.44 (4.547)	4.00 (3.430)	4.17 (4.698)	7.43 (6.113)	6.23 (5.435)
Stress	9.56 (5.635)	7.61 (4.448)	7.47 (5.001)	11.86 (6.568)	8.50 (4.958)

*MBI: Maslach Burnout Inventory
**CERQ: Cognitive Emotion Regulation Strategies Questionnaire
***DASS: Depression, Anxiety and Stress Scale

Table 5. Means and standard deviations of MBI*, CERQ** and DASS*** dimensions by gender (N = 159)

Mean (SD)	Male	Female
MBI		
Emotional exhaustion	21.00 (11.077)	20.95 (11.849)

Depersonalisation	8.44 (6.333)	7.84 (5.880)
Lack of personal accomplishment	26.85 (8.315)	25.10 (7.465)
CERQ		
Adaptive Strategies	71.67 (12.083)	69.61 (12.911)
Maladaptive Strategies	34.44 (8.954)	39.51 (10.208)
DASS		
Depression	3.11 (3.609)	5.83 (5.569)
Anxiety	2.44 (3.030)	5.13 (4.955)
Stress	6.48 (3.965)	8.52 (5.324)

*MBI: Maslach Burnout Inventory
**CERQ: Cognitive Emotion Regulation Strategies Questionnaire
***DASS: Depression, Anxiety and Stress Scale

Although these results indicate that most emergency department professionals predominantly use adaptive emotion regulation strategies (91.8 percent, N = 146), the one-way ANOVA analysis revealed that with increasing burnout levels, the use of adaptive strategies declined relative to maladaptive strategies [$F(3,155) = 5.855$; $P < 0.001$, $R^2 = 0.102$]. Further investigation using Bonferroni correction identified significant differences between staff experiencing burnout across all 3 dimensions and those with no burnout ($P < 0.05$) or burnout in only one dimension ($P < 0.001$) **(Figure 1)**.

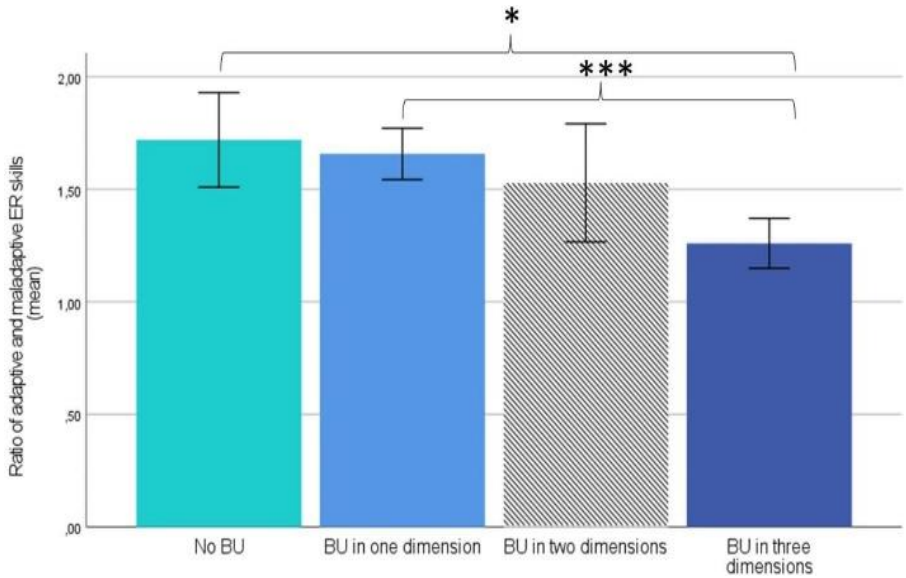

Figure 1. Differences between the burnout groups in the adaptive and maladaptive emotion regulation skills tested (n = 159, **P < 0.01, *** P < 0.001). The error bars represent the 95% confidence intervals

Additionally, multivariate ANOVA demonstrated that increases in burnout levels were associated with heightened mental distress across all measured variables: depression [$F(3,155) = 24.99$; $P < 0.001$, $R^2 = 0.31$], anxiety [$F(3,155) = 8.59$; $P < 0.001$, $R^2 = 0.13$], and stress [$F(3,155) = 27.52$; $P < 0.001$, $R^2 = 0.34$]. Further analyses with Bonferroni correction, detailed in **Figure 2**, revealed significant differences in depression and stress scores between all groups except between those with no burnout and those with burnout in only one dimension. Regarding anxiety, significant differences were observed between individuals experiencing burnout in all three dimensions compared to both the non-burnout group and the one-dimension burnout group.

To identify predictors of the three burnout dimensions—Emotional Exhaustion, Depersonalisation, and Personal Accomplishment—we conducted linear regression analyses using the enter method. Independent variables included Depression, Anxiety, Stress, Adaptive and Maladaptive ERS, Physical exercise, Alcohol consumption, Smoking, Sedative use, Second job, Gender, and Age. All three models reached statistical significance. Emotional Exhaustion [$F(12,158) = 14.798$, $R^2 = 0.549$; adjusted $R^2 = 0.512$] was significantly predicted by Gender ($b = -0.12$, $t = -2.08$, $P < 0.05$), Stress ($b = 0.59$, $t = 5.43$, $P < 0.001$), and Maladaptive strategies ($b = 0.16$, $t = 2.32$, $P < 0.05$), particularly Rumination ($P < 0.05$). Depersonalisation [$F(12,158) = 9.987$, $R^2 = 0.451$; adjusted $R^2 = 0.406$] was predicted by Age ($b = -0.202$, $t = -3.17$, $P < 0.01$), Smoking ($b = -0.16$, $t = -2.54$, $P < 0.05$), Depression ($b = 0.32$, $t = 2.96$, $P < 0.01$), and Stress ($b = 0.28$, $t = 2.33$, $P < 0.05$). Personal Accomplishment [$F(12,158) = 3.619$, $R^2 = 0.229$; adjusted $R^2 = 0.166$] was negatively influenced by Physical exercise ($b = 0.16$, $t = 2.12$, $P < 0.05$), Sedative use ($b = -0.19$, $t = -2.33$, $P < 0.05$), and lower use of Adaptive ERS ($b = 0.32$, $t = 4.29$, $P < 0.001$). Among adaptive strategies, Positive reappraisal stood out as a protective factor against reduced Personal Accomplishment ($P < 0.05$).

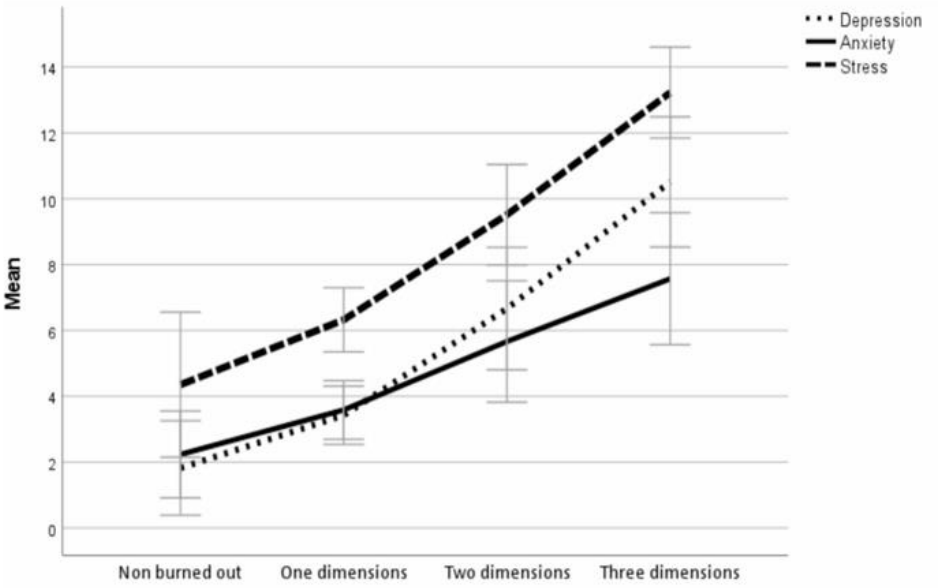

Figure 2. The differences in negative affect measures among the burnout groups (n = 159). Error bars indicate the 95% confidence intervals. The Bonferroni post hoc test results are as follows:
Depression: noBU versus oneBU (not significant), noBU versus twoBU ($P < 0.01$), noBU versus threeBU ($P < 0.001$), oneBU versus twoBU ($P < 0.01$), oneBU versus threeBU ($P < 0.001$), twoBU versus threeBU ($P < 0.01$);
Anxiety: noBU versus oneBU (not significant), noBU versus twoBU (not significant), noBU versus threeBU ($P < 0.001$), oneBU versus twoBU (not significant), oneBU versus threeBU ($P < 0.001$), twoBU versus threeBU (not significant);
Stress: noBU versus oneBU (not significant), noBU versus twoBU ($P < 0.001$), noBU versus threeBU ($P < 0.001$), oneBU versus twoBU ($P < 0.01$), oneBU versus threeBU ($P < 0.001$), twoBU versus threeBU ($P < 0.01$).

To explore what predicts the three aspects of mental distress—Stress, Anxiety, and Depression—a series of linear regression models were employed, using them as dependent variables. The predictors in these models included Adaptive and Maladaptive ERS, along with demographic variables like Gender and Age. Each of the regression models yielded statistically significant results. For Stress [$F(4,158) = 12.77$, $R^2 = 0.249$; adj. $R^2 = 0.23$] and Anxiety [$F(4,158) = 9.465$, $R^2 = 0.197$; adj. $R^2 = 0.176$], Maladaptive strategies—especially Rumination ($P < 0.001$)—emerged as significant predictors, whereas Adaptive strategies showed no meaningful predictive value. In contrast, Depression [$F(4,158) = 13.171$, $R^2 = 0.255$; adj. $R^2 = 0.236$] was influenced both by a lower use of Adaptive strategies ($b = -0.21$, $t = -2.98$, $P < 0.01$) and a higher reliance on Maladaptive strategies ($b = 0.44$, $t = 6.16$, $P < 0.001$). Within these variables, Positive reappraisal and Rumination stood out as the most robust predictors ($P < 0.05$).

This study highlights a considerable incidence of mental distress—including stress, anxiety, and depression—as well as burnout symptoms among professionals in emergency departments. One important trend observed was the decline in the use of adaptive ERS as burnout levels intensified, with a corresponding rise in the application of maladaptive strategies and a heightened

presence of mental distress. Behaviors such as smoking and the consumption of sedatives were associated with an elevated burnout risk, whereas engaging in exercise showed an inverse relationship. Among the various coping mechanisms, adaptive strategies—and notably positive reappraisal—appeared to act as protective factors, particularly against reduced personal accomplishment and depression. On the other hand, maladaptive strategies, and especially rumination, were identified as key contributors to emotional exhaustion and poor mental health outcomes. Furthermore, emotional exhaustion was significantly affected by both gender and stress levels, with female ED professionals and those with greater stress being more vulnerable. Interestingly, younger professionals exhibited higher levels of depersonalisation, which aligns with earlier findings by Maslach *et al.* (2001) suggesting that individuals under 30 are at greater risk compared to those in their 30s or 40s. This may be due to younger staff being more likely to leave the profession when experiencing burnout, leading to a survivor bias among those who remain [36].

Our initial results confirm previous research indicating that burnout is particularly prevalent among emergency department personnel [18, 19], emphasizing the intense emotional and psychological challenges faced in high-stakes clinical environments. However, in contrast to earlier Hungarian studies [41, 42], our findings did not reveal significant differences in burnout prevalence between ED professionals and the general working population. This suggests that the risk of burnout may not be exclusive to healthcare professionals but may equally affect individuals in other fields operating under comparable stressful conditions.

Importantly, this study identified a strong correlation between burnout and the tendency to employ adaptive ERS. A notable decline in the use of adaptive strategies was observed as burnout severity rose, with maladaptive strategies becoming more prevalent. These results highlight the urgent need for tailored ERS interventions that assist ED professionals in stress management and support their mental well-being [43]. For example, mindfulness-based stress-reduction programs have shown potential not only in reducing psychological distress but also in enhancing professional relationships and improving patient care outcomes [44, 45].

In alignment with our findings on the protective benefits of positive reappraisal, a recent investigation [46] also emphasized the role of a strong sense of coherence—an outlook that helps individuals comprehend the causes behind stressful experiences and derive meaningful interpretation from them [47]. This mirrors the underlying principle of positive reappraisal, wherein one transforms adversity into a constructive perspective by grasping its deeper significance. Moreover, integrating positive reappraisal with mindfulness practices may strengthen self-regulatory capacities, foster positive emotional states, and improve resilience to stress and emotional strain [48].

In the context of burnout, individuals frequently resort to maladaptive strategies, such as rumination [49], a pattern strongly linked to depressive symptoms [50]. Additionally, burnout has been associated with unhealthful lifestyle choices, including smoking, alcohol intake, and drug use [51]. Nevertheless, our findings indicate that the majority of respondents do not rely on such maladaptive mechanisms. Fewer than half reported smoking, and the use of sedatives was rare—fewer than 10% acknowledged using such substances. These outcomes align with emerging evidence suggesting that the connection between burnout and substance use may not be as pronounced as previously assumed [52]. With regard to alcohol, most participants stayed within the WHO's recommended limit of one daily drink, indicating a minimal risk profile [53].

Conversely, although regular physical activity is an adaptive strategy with protective effects against burnout and negative emotional states [54], only about one-third of participants reported incorporating it into their routines, suggesting that this beneficial coping method remains significantly underused.

The observed connection between emotion regulation strategies (ERS) and burnout carries critical significance for healthcare institutions and decision-makers. Strengthening the use of adaptive ERS has the potential to alleviate mental distress and foster more efficient stress-coping mechanisms, ultimately promoting the well-being of healthcare professionals and diminishing the adverse consequences of burnout. A preventative approach is crucial and includes three levels: primary prevention aims to decrease risk factors through psychoeducation to stop stress-related disorders before they begin; secondary prevention emphasizes techniques such as relaxation, balanced nutrition, and regular exercise to build resilience; and tertiary prevention involves addressing current symptoms of burnout using therapy, counselling, or medical treatment [55]. In addition, strategies such as mindfulness training, stress-reduction workshops, resilience-building programs, and cultivating supportive workplace cultures have been shown to enhance job satisfaction, increase work productivity, and improve the overall quality and safety of patient care [56]. Therefore, such comprehensive initiatives not only reduce burnout but also help create a more secure work setting and improve patient satisfaction.

Nonetheless, this study is not without limitations. Primarily, it relied on self-reported data, which may be influenced by subjective bias and may not completely represent the complexity of the variables under investigation. Another limitation stems from the sample,

which was drawn from a single emergency department using a convenience sampling method, with a predominance of female respondents and an uneven distribution of job roles, thus restricting the broader applicability of the findings. Future investigations should incorporate more diverse healthcare contexts and expand sample sizes to strengthen the external validity of the results.

Conclusion

To conclude, the study offers valuable insights into the interplay between burnout, mental distress, and emotion regulation in emergency department professionals. A significant number of healthcare workers report experiencing symptoms of depression, anxiety, stress, and burnout. Notably, elevated burnout levels are associated with reduced use of adaptive ERS and increased reliance on maladaptive strategies, which also coincide with heightened mental distress. Variables such as gender, age, exercise habits, smoking, sedative use, stress, depression, and both adaptive and maladaptive strategies significantly predict different aspects of burnout. These findings emphasize the urgency of introducing preventive interventions to reduce job-related stress, encourage adaptive emotion regulation practices, and support the psychological health of ED staff. Establishing supportive work environments and providing access to mental health and stress-reduction resources are essential steps toward mitigating burnout and ensuring better patient care outcomes.

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