

RESEARCH

Open Access



Leveling of triggers: a comprehensive summative content analysis of factors contributing to physical violence in emergency medical services

Mohammad Torabi¹ , Ali Afshari² , Rasoul Salimi³ and Afshin Khazaei^{4*}

Abstract

Background The literature has identified numerous factors that contribute to workplace violence, ranging from environmental stressors to interpersonal conflict. However, a gap remains in our understanding of the specific factors associated with physical violence, particularly concerning its frequency and perceived significance.

Methods A summative content analysis was conducted via the electronic survey platform Porsline in Iran for data collection. In April 2024, EMTs working in urban, road, and air bases in western Iran participated in the study. In total, 358 EMTs were selected via convenience sampling. They provided open-ended responses to the following question: "What do you believe are the most significant factors contributing to physical violence in your workplace?"

Results The analysis resulted in a comprehensive list of 1,407 descriptions, organized into 20 subcategories and further consolidated into ten main categories. The category with the highest frequency was "legal and policy deficiencies," with a frequency of 3103, and the category with the lowest frequency was "workplace culture and professional satisfaction," with 579. The categories based on frequency and significance included "legal and policy deficiencies," "cultural and societal barriers," "insufficient training and practical skills," "shortcomings in organizational safety and support," "interpersonal and operational pressures," "organizational culture and workforce dynamics," "barriers to effective prehospital care," "resource and infrastructure limitation," "challenges in interagency coordination and support," and "workplace culture and professional satisfaction."

Conclusion Legal reforms addressing legal inadequacies, enhancing organizational support systems, and implementing targeted training programs to mitigate conflicts are essential for fostering a safer working environment. By addressing these pressing issues, healthcare facilities can enhance emergency care, safeguard the well-being of emergency responders, and increase the quality of emergency medical services for communities.

Keywords Emergency medical technicians, Workplace violence, Emergency medical service, Emergency care, Qualitative research

*Correspondence:
Afshin Khazaei
A.khazaei91@gmail.com

Full list of author information is available at the end of the article



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Introduction

Workplace violence (WPV) in prehospital systems is a critical issue that significantly impacts the safety and well-being of emergency medical service (EMS) personnel [1]. First responders, including EMTs and paramedics, often operate in unpredictable environments where they are vulnerable to various forms of violence, such as physical, verbal, and emotional attacks [2]. Recent studies have shown that a significant proportion of emergency responders experience WPV, with prevalence rates of physical violence (20.8%), verbal violence (66.8%), and sexual harassment (10.5%) [3].

WPV against EMS personnel can lead to physical injuries and have a profound impact on mental health, including PTSD, anxiety, and depression [4, 5]. The psychological toll of such violence is exacerbated by the high-stress nature of their work, which often involves responding to emergencies in chaotic environments where emotions run high and tensions may escalate quickly [6]. Factors contributing to WPV include environmental stressors such as inadequate staffing, a lack of security measures, and the presence of intoxicated or mentally unstable individuals, as well as interpersonal conflicts arising from the stressful situations encountered during emergency responses [7, 8]. Despite the documented prevalence of WPV in EMS settings, there remains a gap in understanding the specific factors associated with physical violence, particularly concerning the frequency and perceived significance of WPV among EMTs. This lack of clarity hinders the development of targeted interventions to reduce such incidents in terms of their importance. Qualitative studies are critical in this context, as they provide nuanced insights into the experiences and perceptions of EMS personnel regarding WPV. By exploring the lived experiences of first responders, qualitative research can uncover the complexities of WPV, revealing underlying themes and patterns that quantitative studies may overlook [9, 10].

Understanding the dimensions of WPV is critical for developing effective interventions to reduce violence in high-stress occupations. By systematically examining instances of physical violence within the prehospital system and focusing on the frequency and significance of identified factors, this study aims to provide valuable insights that can inform policy changes and training programs designed to increase the safety and well-being of EMS personnel. Ultimately, improving the working conditions for these first responders will protect them and strengthen the quality of care provided to patients in emergency situations. Therefore, the present study was conducted using a qualitative approach to prioritize factors that cause physical violence in EMS from the perspective of EMTs in the western region of Iran.

Methods

Design

This study utilized a summative content analysis approach beyond simple word counting to analyze underlying meanings (latent content) within the text [12]. This method, grounded in a social constructivist paradigm, allows for a deeper understanding of the text's critical aspects and significance [13]. Before starting the study, ethical approval was obtained from the Ethics Committee of the Asadabad School of Medical Sciences (Code of Ethics: IR.ASAUMS.REC.1403.015). The participants received a comprehensive briefing and were fully informed about the study's objectives, benefits, and voluntary nature. They also provided their consent through a link to the study details. The reporting adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines [11].

Sampling and participants

The study population comprised EMS personnel employed at urban areas, roads, and air bases in the western region of Iran (Hamadan, Kermanshah, Asadabad, Ilam, and Kurdistan) in April 2024. A convenience sampling method was employed to select participants, facilitating accessibility given the logistical challenges of reaching dispersed EMS personnel across multiple locations. Eligible participants included those holding a bachelor's or master's degree in nursing, an associate's or bachelor's degree in EMT, a bachelor's degree in operating rooms, or a bachelor's degree in anesthesia. Additionally, participants were required to have a minimum of one year of experience working in emergency centers and bases; work full-time (12–24 h per day) on urban, road, and air bases; express a willingness to participate in the study; have no history of mental disorders; do not concurrently work in other medical facilities or centers; and have not experienced any stress-related issues in the past eight weeks, such as the loss of a loved one. EMS personnel who submitted incomplete questionnaires were excluded from this study. Ultimately, 358 technicians completed the online questionnaire.

Data collection

The research instrument was derived from a section of the questionnaire on WPV in the healthcare sector and aligned with the objectives of the current study [12]. Porsline, an electronic survey platform based in Iran, was used for data collection. The first author, an assistant professor in nursing with 19 years of experience in the prehospital system, emailed the questionnaire link to the heads of EMSs in five provinces. After verification, technicians were provided with the corresponding link through virtual channels for prehospital emergencies. The baseline data of participants who met the inclusion

criteria were analyzed. One question in the instrument solicited occupational and demographic information, including the province of work location, age, field of study, employment status, marital status, number of shifts worked, work experience, and base location. In the next question aimed at determining manifest content, participants were asked to provide an open text to respond to the following question: “What do you believe are the most significant factors contributing to physical violence in your workplace?” Additionally, they were encouraged to elaborate on their reasons in the free text box to extract the latent content. The time allocated to respond to the study question in the online questionnaire was 15 min.

Data analysis

A summative content analysis utilizing an inductive approach, where themes, categories, and subcategories were derived from the data, was employed to quantify and determine the frequency of keywords related to the factors of physical violence in the prehospital setting [13]. Initially, all the responses were entered into Excel software. The keywords were then identified, and their counts and frequencies were calculated. In the subsequent phase, the data were imported into MAXQDA software, version 2022, to identify codes, subcategories, and categories. The first author read the data multiple times to gain a comprehensive understanding, which provided a foundation for labeling the data (coding). The obtained codes were examined for similarities and differences, leading to the extraction and creation of subcategories and categories. The second author independently coded a portion of the data to ensure intercoder reliability and compared the resulting codes with those of the first author to reach a consensus on coding. Discrepancies in codes were presented to a third individual with a background in emergency medicine. Additionally, an external author with expertise in prehospital emergency medicine participated in peer debriefing sessions with the research team to discuss coding practices, definitions, and examples. Systematic meetings were also held periodically to review the coding methods, codes, code definitions, and examples of descriptions. For an example of encoding keywords and descriptions, see the following table:

		Labeling
Keyword	“Number of low emergency bases”	Lack of emergency bases
Description	“The lack of facilities leads to increased workload, which causes delays in reaching the incident scene.”	Infrastructure Deficiencies

Trustworthiness

Credibility, transferability, dependability, and confirmability were employed to increase the trustworthiness of the results [14]. Credibility, which pertains to the credibility of the findings, was achieved by providing a comprehensive description of the methods and study context and a detailed exposition of the results. Transferability, which relates to the reader’s perception of the applicability of the findings to their own experiences, was ensured by substantiating each category with descriptions from the majority of participants as evidence and by presenting the results accurately and clearly. This approach assists readers in evaluating the relevance of the findings in various contexts. Dependability, which emphasizes the consistency and reliability of results across time and settings, was established by implementing audit protocols that detail all the research processes. Confirmability, which focuses on the objectivity of the findings, was secured through the research team’s involvement, peer debriefing, and resolution of coding discrepancies through consensus discussions [15].

Quantitative results

This study included 358 emergency medical technicians (EMTs) employed at medical universities in western Iran. The participants had a mean age of 33.96 ± 6.86 years and an average work experience of 10.57 ± 6.80 years (Table 1). The largest age group was 30–34 years, comprising 30.7% of the participants, whereas the most common range of work experience was 6–10 years, accounting for 26.8%. Most respondents held a degree in emergency medicine (75.6%), with 60.6% having a bachelor’s degree. Additionally, 43.6% were formally employed, and 74% were married. More than half of the staff (53.6%) worked 24-hour shifts, whereas the remainder worked

Table 1 Noncategorical Variables Associated with EMT demographic characteristics

Quantitative Variables		N	Minimum	Maximum	Mean	Std. Deviation
Age		358	22	54	33.96	6.869
Work Experience (years)		358	0	34	10.57	6.805
Number of shifts per month	24 h	192	1	18	9.11	1.978
	12 h	166	3	28	13.20	3.795

EMTs: Emergency medical technicians

12-hour shifts. Furthermore, most EMTs were based in urban areas, representing 50.3% of the total (see Table 2).

Qualitative results

The participants entered 2,871 keywords related to the main question of the study. This resulted in the assignment of 1,407 descriptions, which accounted for 48.7% of the data, and the extraction of 10 categories, 20 subcategories, and 61 codes, each exhibiting varying frequencies across the different subcategories. This indicates that participants repeatedly mentioned each keyword in response to the study question. Table 3 presents the categories and subcategories corresponding to each category's highest and lowest frequencies. This finding underscores the significance of potential factors contributing to physical violence in the prehospital environment from the technicians' perspective.

Category 1: Legal and policy deficiencies

This category represents the most prevalent cause of physical violence in the prehospital setting. It encompasses three main categories and seven subcategories (Table 3), highlighting the absence of specific and transparent laws and the most significant factors contributing to physical violence from a technician's perspective. Within this category, the lack of appropriate punitive

laws includes the following: "Without appropriate consequences, perpetrators of violence may continue their behavior and undermine the organization's commitment to employee safety"; "Employees who witness or experience violence that is not addressed may lose confidence in the organization's ability or willingness to protect them"; "We do not have clear and transparent laws regarding physical violence"; and "If staff are not adequately informed about their legal rights, those rights will not be protected in the event of physical violence," as expressed from the technicians' perspective.

Category 2: Cultural and societal barriers

The current category was derived from two subcategories: substance use with a code (substance use among patients and companions), economic hardships, and cultural misunderstandings with five codes (societal poverty, inflation, high costs, language and communication barriers, cultural misunderstandings, prevalence of mental health problems, and public reluctance to cooperate). The most frequent code substance use among patients and companions (17.83%) and public reluctance to cooperate (3.41%) represented the least frequent issue. Keywords and description related to this category included "impaired decision-making," "behavioral control," "Patients emotionally suffer easily and they are irritated

Table 2 Categorical variables related to the demographic characteristics of EMT

Categorical Variables	Category	Frequency	Percent
Field of Study	Operating room	4	1.1
	Anesthesia	12	3.4
	Nursing	57	15.9
	EMTs	274	76.5
	Incident and crisis management	5	1.4
	Other	6	1.7
Degree	PhD	1	0.3
	Diploma	7	2.0
	Associate	112	31.3
	Bachelor	20	5.6
	Master	234	60.6
Type of employment	Contractual	115	32.10
	Permanent	156	43.6
	Corporate	18	5.0
	Tarhi	44	12.3
	Temporary	25	7.0
Marital status	Married	265	74.0
	Single	186	26.0
Number of shifts (in a month)	12 h	166	46.4
	24 h	192	53.6
Deployment base in the last 6 months	Road	174	48.6
	Urban	180	50.3
	Motorlance	2	0.6
	Air	2	0.6
	Total	358	100.0

EMTs: emergency medical technicians

Table 3 EMT descriptions of the most important physical workplace violence factors in terms of frequency

Categories and subcategories		Codes	Frequency of code (f)	% of total keywords (% of 2871)
Legal and policy deficiencies (Total frequency, 3103)				
<i>Lack of effective laws</i>	Absence of appropriate punitive laws	681		23.71
	Ineffectiveness of existing laws	490		17.06
<i>Inadequate legal processes</i>	Inadequate response to prior violent incidents	554		19.29
	Delayed and inefficient legal processes	370		12.88
<i>punishment issues</i>	No punishment of offenders	443		15.43
	Disproportionate crime-to-punishment ratio	410		14.28
	Lack of awareness of legal protections	155		5.31
Cultural and societal barriers (Total frequency, 1983)				
<i>Substance use</i>	Substance use among patients and companions	512		17.83
<i>Economic hardships and cultural misunderstandings</i>	Societal poverty, inflation, and high costs	430		14.97
	Language and communication barriers	420		14.62
	Cultural misunderstandings	367		12.78
	Prevalence of mental health issues	156		5.43
	Public reluctance to cooperate	98		3.41
Insufficient training and practical skills (Total frequency, 1745)				
<i>Interintra personal skills and patient interaction</i>	Inadequate patient interaction skills	396		13.82
	Insufficient practical skills	391		13.61
	Lack of de-escalation techniques	387		13.47
	Low resilience	291		10.13
	Poor driving proficiency	112		3.90
	Patient stigmatization and blame	89		2.78
	Limited conflict resolution skills	79		2.75
Shortcomings in organizational safety and support (Total frequency, 1558)				
<i>safety equipment and procedures</i>	Inadequate safety and protective equipment	390		13.58
	Ambiguous reporting procedures	311		10.83
	Neglect of personnel safety	178		6.93
<i>Rights and mental health support</i>	Inadequate protection of staff rights	199		10.09
	Insufficient mental health support	93		3.23
	Lack of peer support programs	77		2.68
<i>Legal issues</i>	Absence of clear anti-violence guidelines	234		8.15
	Lack of in-office legal counsel	76		2.64
Interpersonal and operational pressures (Total frequency, 1232)				
<i>Communication challenges</i>	Patient and client stress and anxiety	312		10.86
	Miscommunication between team members	141		4.99
<i>Dispatch and mission delays</i>	Delays and inaccuracies in dispatch	242		8.42
	Delayed mission announcements	204		7.10
	Unexplained operator delays in mission announcements	185		6.44
<i>Behavioral misconduct</i>	Colleague misconduct	148		5.15
Organizational culture and workforce dynamics (Total frequency, 1079)				
<i>Recognition and advancement</i>	Pay disparities	234		8.15
	Negative psychological work environment	220		7.65
	Misconduct by superiors and colleagues	188		6.54
	High turnover rates	173		6.25
	Lack of merit-based promotions	101		3.51
	Inadequate recognition of achievements	87		3.03
	Impact of free emergency services	76		2.64
Barriers to effective prehospital care (Total frequency, 965)				

Table 3 (continued)

Categories and subcategories		Codes	Frequency of code (f)	% of total keywords (% of 2871)
<i>Public awareness and mistrust</i>	Public unawareness of emergency systems		360	12.53
	Unawareness of emergency infrastructure		196	6.82
	Poor media portrayal of EMS		87	3.03
<i>Misinterpretation of Roles and Patient Urgency</i>	Role and responsibility misunderstandings		212	7.38
	Misjudged urgency of patient conditions		110	3.83
Resources and infrastructure limitations (Total frequency, 951)				
<i>Infrastructure deficiencies</i>	Auxiliary fleet deficiencies		217	7.55
	Inadequate staffing levels		162	5.64
	Insufficient emergency bases		150	5.22
	Poor facility maintenance		154	5.36
	Lack of workplace facilities		58	2.02
<i>Equipment issues</i>	Equipment malfunctions and outdated		210	7.31
Challenges in interagency coordination and support (Total frequency, 931)				
<i>Coordination issues and jurisdictional conflicts</i>	Delayed backup support		290	10.10
	Jurisdictional disputes		287	9.99
	Poor interorganizational coordination		265	9.23
	Unwarranted law enforcement interference		89	3.09
Workplace culture and professional satisfaction (Total frequency: 579)				
<i>Recognition, career growth, and job satisfaction</i>	Unawareness of primary responsibilities		200	6.96
	Feeling undervalued and disrespected		54	1.88
	Inability to cope with job demands		38	1.32
	Work-life imbalance		38	1.32
<i>Lack of motivation and support</i>	Low motivation for quality work		149	5.18
	Lack of career advancement opportunities		100	3.48
	Disengagement and burnout		76	2.65

EMS: Emergency medical services

by the slightest misunderstanding,” and “Language barriers can create a feeling of alienation, making patients more frustrated and less willing to cooperate.”

The absence of appropriate punitive laws (23.71%) and lack of awareness regarding legal protection (5.31%) were identified as the most and least frequent causes of physical violence, respectively. Keywords associated with this category include “legal gaps,” “policy shortcomings,” “accountability issues,” “lack of deterrents,” “delayed justice,” and “awareness of legal rights.” Notable statements on this topic include “limited access to healthcare,” “frustration with financial constraints,” “cost of living,” “communication problems,” and “prevalence of mental illness.” Technicians highlighted that issues such as “substance use leads to impaired judgment, increasing the likelihood of conflicts and potential violence in tense situations,” “Patients under alcohol influence often exhibit unpredictable behavior, making it challenging to provide care,” “The presence of substances can heighten anxiety and aggression in both patients and their companions,” “When companions are intoxicated or high, it can escalate tensions and compromise communication with healthcare providers,” and “Economic pressure has caused tension patients and companions.”

Category 3: Insufficiencies in training and practical skills

This category highlights the critical role of training and skills, focusing primarily on necessary skills and scene management when dealing with patients in a prehospital setting. It encompasses a subcategory (interpersonal skills and patient interaction) with seven codes (inadequate patient interaction skills, insufficient practical skills, lack of de-escalation techniques, low resilience, poor driving proficiency, patient stigmatization and blame, and limited conflict-resolution skills). The most prevalent issue, inadequate patient interaction skills (13.82%), underscores the importance of enhancing interaction techniques, whereas limited conflict resolution skills (2.75%) are the least reported. This category includes keywords such as communication barriers, “communication barriers,” practical skills,”

“empathy deficits,” “inadequate training,” “hands-on experience,” “de-escalation techniques,” “practical driving skills,” and “stress reduction.” Technicians emphasized that “effective communication can significantly reduce the risk of confrontation,” “de-escalation training is crucial for handling volatile situations,” and “we often feel unprepared to manage conflicts due to insufficient training.” Some technicians also expressed, “If we

cannot communicate effectively with the patient, we are ill-equipped to manage the scene, laying the groundwork for violence,” “lack of control in emergency patient care will inevitably lead to resentment and escalation,” “we must approach patients with empathy; otherwise, we risk losing control when faced with their aggression,” and “blaming the patient and absolving ourselves of responsibility will only fuel a conflict-prone environment.”

Category 4: Shortcomings in organizational safety and support shortcomings

This category addresses deficiencies in organizational structures that contribute to violence in prehospital settings. It comprises three subcategories (safety equipment and procedures, rights and mental health support, and legal issues) and eight codes (inadequate safety and protective equipment, ambiguous reporting procedures, neglect of personnel safety, inadequate protection of staff rights, insufficient mental health support, lack of peer support programs, absence of clear anti-violence guidelines, and lack of in-office legal counseling). The primary issues, inadequate safety, and protective equipment (13.58%), emphasized the insufficient resources available to protect staff. In comparison, the absence of in-office legal counseling (5.95%) was recognized as the least common concern. The keywords “equipment shortages,” unclear protocols, “unsafe working conditions,” inadequate mental health support, “ambiguous reporting procedures,” and “legal uncertainty” were central to this category. The main latent content from the description that the technicians had related to the category was “Without proper support and resources, we feel vulnerable and unprotected,” “Clear ant violence guidelines are essential for our safety,” “The absence of legal counsel leaves us exposed in critical situations,” “When faced with physical violence from perpetrators, we are always guilty,” “Paying so much attention to the perpetrators of violence that no one believes us anymore,” “A violent person is always popular,” “Our lives are worthless in front of violent criminals,” “We do not have enough security in the system,” “There is no psychological counseling in our prehospital system, and unfortunately psychoanalysis, which has an important position in staff health, has no place in our system,” reflecting the technicians’ perspective on the need for improved organizational support.

Category 5: Interpersonal and operational pressures

This category highlights the significant factors contributing to physical violence in the prehospital workplace and comprises three subcategories that reflect the interpersonal dynamics and operational challenges faced by technicians. The most frequent codes, patient and client stress and anxiety (10.86%), underscored the emotional strain on both patients and staff, whereas colleague

misconduct (5.15%) was the least frequent issue. This category encompasses keywords such as “Emotional distress,” “Information sharing,” “response time,” “miscommunication,” “accuracy in information,” “operational delays,” “Information dissemination,” “delay justification,” and “team trust.” Technicians expressed concerns such as “The stress of the patient and his companions is quite effective in provoking and inflaming physical violence,” “High levels of stress from patients can escalate situations rapidly,” “When communication breaks down, it creates an environment ripe for conflict,” and “If colleagues behave in an inappropriate and unethical manner when dealing with a patient suffering from pain and distress due to illness, physical violence from the patient is also to be expected.”

Category 6: Organizational culture and workforce dynamics

This category contained a total frequency of 1079 codes, with a subcategory (recognition and advancement) focused on recognition and advancement. Pay disparities accounted for approximately 8.15%, and the impact of free emergency services accounted for 2.64% of the factors contributing to physical violence in the prehospital workplace. Keywords in this category included “wage inequality,” “lack of transparency,” “toxic workplace culture,” “abuse of power,” “retention challenges,” “performance-based evaluations,” “lack of appreciation,” “insufficient feedback,” “patient overload,” and “quality of service.” Some technicians noted that “significant pay disparities between emergency responders, particularly between management and emergency responders, can cause resentment” and “a sense of injustice can cause tension and increase the risk of physical conflict in the workplace.” Technicians demonstrated this with statements such as “Low income leads to a lack of motivation, procrastination, and carelessness at work, which can lead to physical conflict,” “With low income, there is no motivation to do quality work”; “Supervisors who use verbal abuse and intimidation can create an environment that fosters resentment and increases the likelihood of physical altercations”; “A work environment characterized by constant stress, hostility, bullying and a lack of mutual respect can lead to an increased risk of physical violence”; “When technicians feel they are mistreated, discriminated against, or denied opportunities, they may be more likely to resort to physical violence as a means of retaliation or self-defense”; and “Free prehospital emergency service increases workload, high expectations, and unreasonable expectations.”

Category 7: Barriers to effective prehospital care

Effective prehospital care is critical for ensuring optimal patient outcomes in EMSs. This category comprises

two subcategories: “public awareness and mistrust” with three codes (public unawareness of emergency systems, unawareness of emergency infrastructure, and poor media portrayal of EMSs) and “misinterpretation of roles and patient urgency” with two codes (role and responsibility misunderstandings, and misjudged urgency of patient conditions), highlighting the public’s lack of understanding of how emergency systems operate and the poor clinical condition of patients. The most frequent codes of public unawareness of emergency systems (12.53%) and misjudged urgency of patient conditions (10.77%) represented the least frequent issues. “Lack of knowledge,” “community education,” “infrastructure gaps,” “media influence,” “public perception,” “clarification of roles,” “EMS responsibilities,” “triage challenges,” and “assessment errors” keywords related to the current category formed. Statements such as “People call us for nonemergent issues or misunderstanding when they call 115, which leads to unnecessary delays and escalations”; “People do not know about urgent care facilities or what to do in certain situations, so they automatically call 115, which clog up the system”; “Some people assume we can make medical decisions on the spot, but we are here to provide stabilization, not treatment”; “I have had patients who insist they are fine and refuse to transport, even when their vital signs suggest otherwise”; “There’s a prevailing thought that we are not there to help but to judge or critique situations”; and “When portrayed negatively, it influences others’ perceptions and heightens hostility.”

Category 8: Resource and infrastructure limitations

This category encompasses factors that are outside the control of EMTs, including two subcategories: infrastructure deficiencies with five codes (auxiliary fleet deficiencies, inadequate staffing levels, insufficient emergency bases, poor facility maintenance, and lack of workplace facilities) and equipment issues with a code (equipment malfunctions and outdated). In terms of frequency, the most crucial and least significant factors contributing to physical violence in the prehospital setting were deficiencies in the auxiliary fleet (7.55%) and inadequate workplace facilities (2.02%). The most important keywords in the current category included “vehicle availability,” “lack of integration,” “local emergency services,” “staffing shortages,” “workforce allocation challenges in accessibility,” “response time delays,” “geographic coverage gap,” “deteriorating infrastructure,” “insufficient amenities,” “employee comfort issues,” “inadequate workspace,” “technology obsolescence,” and “repair costs.” “The insights gathered from interviews with technicians yielded the following quotes: “Our ability to reach remote or inaccessible areas is hindered, particularly in cases where infrastructure has been damaged or disrupted”; “The lack of telemedicine equipment has led to

an increase in diagnostic errors by technicians, which can ultimately lead to physical violence”; “Using an old ambulance is synonymous with a lack of comfort and safety for the patient, longer transfer time and high maintenance cost”; “With an aging population and a growing need for prehospital services”; “The absence of bases has resulted in delays in reaching the scene and dissatisfaction”; “The inadequacy of bases has led to an expansion in coverage of areas below the base, weakening service delivery”; and “The lack of a skill leveling system of technicians in Iran’s hospital emergency system leads to a disparity in providing services to the patient.”

Category 9: Challenges in interagency coordination and support

This category underscores the critical need for effective interagency collaboration in the prehospital setting. It includes a subcategory (coordination issues and jurisdictional conflicts) with four codes (delayed backup support, jurisdictional disputes, poor inter-organizational coordination, and unwarranted law enforcement interference). The most frequent issue, delayed backup support (10.10%), underscores the risks associated with slow response times, whereas unjustified law enforcement interference (3.09%) was the least frequent concern. In the current category, the following keywords were used: “Delayed backup,” “support personnel,” “legal responsibility,” “authority disputes,” “ineffective collaboration,” “lack of shared protocols,” “overstepping authority,” and “unfounded interventions.” Descriptions related to this category include: “Timely inter-organizational backup is crucial for our safety in high-risk situations”; “The prehospital emergency doctor’s lack of proficiency in issuing updated medical orders to patients has led to physical conflicts on scenes multiple times”; and “Jurisdictional disputes can lead to confusion and hinder critical care delivery” and “Effective coordination between agencies is essential to ensure seamless care” echo technicians’ viewpoint on the importance of collaboration and support intelligence.

Category 10: Workplace culture and professional satisfaction

This category was the lowest in terms of frequency (a total frequency of 579 codes), with two subcategories, “Recognition, career growth” (four codes: unawareness of primary responsibilities, feeling undervalued and disrespected, inability to cope with job demands, and work-life imbalance), and “Job satisfaction and lack of motivation and support” (three codes: low motivation for quality work, lack of career advancement opportunities, and disengagement and burnout), delving into the complex interplay between workplace culture and professional satisfaction among EMTs. The subcategories

delineate pivotal factors influencing EMTs' workplace dynamics, with "unawareness of primary responsibilities" (6.96%) emerging as the most frequently cited issue, whereas "work-life imbalance" and "inability to cope with job demands" (1.32%) were identified as the least prevalent concerns. The EMTs noted, "Inadequate clarity about job descriptions results in poor patient care." EMTs stated, "When I put in extra time or effort, and it goes unnoticed, it is challenging to stay motivated." A lack of motivation can significantly affect patient care and overall team morale." "I have been in this role for years, and no real progression or promotion is available." It makes me feel stuck," "I'm out there risking my safety, and sometimes it feels like nobody cares about what I do," many spoke of exhaustion and a trend toward apathy, with one remark: "When you're working long hours with little support, it is easy to stop caring about everything, "It is disheartening to feel like your experience or input is disregarded. It creates a toxic environment", "Some days, it feels like I'm juggling too many things and just cannot keep up," and "My family rarely sees me because I am always on the shift. It is exhausting and affects my relationships", highlighting the critical need for enhanced support systems and resources within the workplace.

Discussion

This study provides a comprehensive analysis of the various factors that play a role in physical violence against EMTs in western Iran, emphasizing their frequency and significance. The research identified ten key categories, each underscoring the complexity of the issue and stressing the importance of a holistic approach to tackling violence against EMTs.

Legal and policy deficiencies category

An examination of the legal and policy deficiencies in EMSs reveals significant barriers that hinder their ability to address violence and ensure personnel safety. With a total frequency of 3103 incidents, the data highlighted critical areas related to the lack of effective laws, inadequate legal processes, and challenges surrounding punitive measures.

Lack of effective law subcategory

The findings indicated that deficiencies in effective legislation accounted for a significant portion (23.71%) of the challenges related to violence in EMS. This category highlights two critical issues: the absence of appropriate punitive laws and the ineffectiveness of existing laws. This aligns with previous research suggesting that the lack of robust legal frameworks makes EMS workers more vulnerable to violence, as perpetrators may perceive minimal or no consequences for their actions [16]. Effective and enforceable laws are essential to ensure the

safety and security of EMS personnel, as inadequate legislation can foster a permissive environment for aggression and violence [17]. Therefore, there is an urgent need for legislative reforms to address these gaps and enhance the protection of EMS staff.

Inadequate legal process subcategory

Another significant discovery was the issue of inadequate legal processes, which accounted for approximately 19.29% of incidents. Delays and inefficiencies in legal procedures, combined with a lack of timely responses to prior violent incidents, contribute to feelings of frustration and vulnerability among EMS workers. This observation aligns with previous research underscoring the negative consequences of delayed or insufficient legal intervention for workplace safety. A sluggish or unresponsive legal system can undermine the trust of EMS personnel in the justice system, potentially discouraging them from reporting violent incidents and seeking justice [18].

Punishment issues subcategory

Punishment-related deficiencies, which account for 15.43% of the identified issues, highlight the failure to punish offenders and the disproportionate crime-to-punishment ratios for the well-being of EMTs. When perpetrators evade appropriate consequences or punishments that do not correspond to the severity of the offense, a climate of impunity can emerge. Furthermore, a lack of awareness regarding legal protection exacerbates the problem, as EMS personnel may need to understand their rights and protections entirely under the law. Prior research has shown that a prompt and proportional legal response to WPV is essential for deterring future incidents and promoting a safer work environment for EMS professionals [19].

Cultural and societal barriers category

The analysis of the cultural and societal barriers affecting EMSs revealed several vital factors that significantly impede effective care delivery. With a total frequency of 1983 incidents, the data identified critical areas related to substance use, economic hardships, cultural misunderstandings, and public reluctance to cooperate.

Substance use subcategory

The data indicate that substance use among patients and their companions is a significant factor contributing to cultural and societal barriers, accounting for 17.83% of reported incidents. This issue presents substantial challenges for EMS personnel, as interactions with individuals under the influence can lead to heightened tensions and aggressive behavior. Substance use complicates patient assessments and treatment, further increasing the

risk of violence. Previous research has demonstrated that substance abuse often correlates with increased aggression and can create an unpredictable environment during emergencies [20]. Therefore, developing strategies to address substance use in EMS encounters to improve safety and reduce violence is crucial.

Subcategory of economic hardship and cultural misunderstandings

Economic hardships, including societal poverty, inflation, and high living costs, accounted for 14.97% of the identified barriers. These factors can lead to increased stress and anxiety among patients and their families, often resulting in frustration during emergencies. This finding is consistent with the literature, which indicates that economic instability can exacerbate health crises and contribute to aggressive behavior in healthcare settings [21]. Additionally, language barriers (13.82%) cultural misunderstandings, which represent 12.78% of the barriers, along with the prevalence of mental health issues (5.43%), further complicate interactions between EMS personnel and the communities they serve. Misunderstandings arising from cultural differences can lead to miscommunication, escalating tension, and creating an unsafe environment for EMS providers [22]. Public reluctance to cooperate, which accounts for 3.41% of incidents, was a significant barrier to the effectiveness of EMS operations. When patients or bystanders hesitate to engage with emergency responders, they can delay care and contribute to chaotic situations, thereby increasing their risk of violence. Research indicates that fostering trust and cooperation between EMS personnel and their communities is essential for ensuring effective responses and reducing the potential for confrontational situations [23].

Insufficiencies in training and practical skills

Assessment of inadequate training and practical skills in EMSs has revealed significant barriers that hinder effective patient care and team dynamics. With a total frequency of 1745 incidents, the data highlight several critical areas related to interpersonal skills, patient interaction, and practical competencies that require urgent attention.

Interpersonal skills and patient interaction subcategory

The findings revealed that insufficient training and practical skills pose a significant challenge for EMSs. Inadequate patient interaction skills accounted for 13.82% of the reported issues within this category. This deficiency can severely hinder effective communication between EMS personnel and patients, leading to misunderstandings and potentially escalating tensions. Research indicates that strong interpersonal skills are crucial for

managing patient interactions, particularly in high-stress situations [24, 25]. Therefore, enhancing training in this area is essential for improving overall patient care and safety. Insufficient practical skills, accounting for 13.61% of the identified barriers, exacerbate prehospital emergency workers' challenges. These skills are crucial for effective patient assessment and treatment. When prehospital providers lack practical skills, their confidence and effectiveness in emergencies can be significantly compromised. Previous studies have demonstrated that comprehensive training programs emphasizing practical skills can enhance the competency of EMS personnel [26], thereby improving patient outcomes and reducing the likelihood of conflict.

The lack of de-escalation techniques, which accounted for 13.47% of incidents, represents a critical concern regarding workplace violence. Effective de-escalation strategies are essential for diffusing potentially volatile situations, particularly when interacting with agitated patients or bystanders. The absence of these techniques can result in heightened aggression and violence during prehospital interactions. Research indicates that training in de-escalation techniques can significantly reduce the incidence of violence in healthcare settings [27]. Low resilience, reported at 10.13%, suggests that many EMTs struggled to cope with the emotional and psychological demands of their roles. This lack of resilience can adversely affect their ability to manage stress and maintain professionalism during challenging encounters [28]. Additionally, other related factors, such as poor driving proficiency (3.90%), patient stigmatization and blame (2.78%), and limited conflict resolution skills (2.75%), contributed to the challenges faced by EMS workers. Addressing these issues through targeted training can enhance the effectiveness of technicians and improve their interaction with patients and the public.

Shortcomings in the organizational safety and support category

Analyzing organizational safety and support shortcomings within an EMS reveals significant deficiencies that impact personnel safety and well-being. With a total frequency of 1558 incidents, the data highlighted critical issues related to safety equipment and procedures, personnel rights, mental health support, and legal concerns.

Safety equipment and procedures subcategory

These findings highlight significant shortcomings in organizational safety and support. One critical area identified was the inadequacy of safety and protective equipment (such as self-defense protection devices), accounting for 13.58% of the reported issues. The lack of proper safety gear poses considerable risks to EMS personnel, exposing them to potential harm during their duties. Research

has shown that adequate protective equipment is essential for ensuring the safety of emergency responders and can significantly reduce workplace injuries. Therefore, organizations must prioritize investments in appropriate safety equipment to protect their staff.

Ambiguous reporting procedures, which account for 10.83% of incidents, contribute to a lack of clarity in addressing safety concerns and violent incidents. When technicians are uncertain about reporting issues or need more confidence in the reporting process, this can result in the underreporting of violent incidents and safety settings. This finding aligns with previous research indicating that clear and accessible reporting procedures are essential for fostering a culture of safety and accountability within EMS [24]. Organizations should strive to develop and communicate explicit protocols for reporting incidents and concerns to enhance transparency and responsiveness. Neglecting personnel safety, which accounts for 6.19% of the identified challenges, underscores the necessity for organizational commitment to staff well-being. When organizations fail to prioritize safety, they create a work environment in which employees feel undervalued and vulnerable. This neglect not only affects staff morale but can also contribute to higher rates of WPV. Research has demonstrated that a proactive approach to safety, including regular assessments and training, can significantly enhance security and well-being [29].

Rights and mental health support subcategory

Significant concerns included inadequate protection of staff rights (10.09%) and insufficient mental health support (3.23%). EMS personnel frequently encounter high-stress situations, and without appropriate mental health resources, they may experience burnout and emotional distress. Furthermore, the lack of peer support programs (2.68%) could leave staff without essential support networks to help them process their experiences. Establishing comprehensive mental health support systems and safeguarding staff rights are crucial for maintaining the psychological well-being of EMS personnel [30].

Legal issues subcategory

Legal shortcomings, such as the absence of clear anti-violence guidelines (8.15%) and a lack of in-office legal counsel (5.95%), further complicate the safety landscape for EMS workers. Without well-defined policies and legal guidance, organizations may struggle to address incidents of violence effectively. Research has demonstrated that clearly articulated anti-violence policies are essential for fostering a safe working environment and equipping employees with the resources necessary to manage conflicts [31].

Interpersonal and operational pressure categories

The analysis of interpersonal and operational pressures within an EMS reveals significant challenges that affect both the efficacy of care provided and the well-being of personnel. With a total frequency of 1232 incidents reported, the data emphasize critical areas, such as communication challenges, dispatch and mission delays, and behavioral misconduct among colleagues.

Communication challenges subcategory

The findings indicate that communication challenges, which account for approximately 10.86% of incidents, significantly contribute to interpersonal stress within the EMS. Factors such as patient and client anxiety and miscommunication among team members are prominent sources of pressure. This observation aligns with previous research, suggesting that communication issues can heighten stress and increase the likelihood of violent incidents [32]. Studies have demonstrated that unclear or ineffective communication exacerbates misunderstandings and tensions during crises, creating an environment where violence is likely to occur [33]. Therefore, enhancing communication skills among EMS personnel could be an effective strategy to reduce these tensions.

Dispatch and mission delays subcategory

Another significant finding was the impact of dispatch and mission delays, which accounted for approximately 8.42% of reported incidents. Delays and inaccuracies in dispatching, along with unexplained operator delays, contribute to frustration and heightened tension, ultimately creating a conducive environment for physical violence in EMSs. Previous studies indicate that delays and miscoordination in dispatching can lead to dissatisfaction and increased stress among personnel [34].

Behavioral misconduct by colleagues subcategory

Colleague misconduct, which accounts for 5.15% of reported stressors, underscores how unprofessional behavior among team members can lead to physical conflict. High-stress environments such as EMSs may cultivate unprofessional behaviors, resulting in interpersonal conflicts. This finding aligns with previous research indicating that organizational culture and colleague misconduct significantly contribute to WPV in EMS settings [35]. Enhancing the organizational culture and establishing clear behavioral protocols can help mitigate these issues.

Organizational culture and workforce dynamics category

Examining an EMS's organizational culture and workforce dynamics reveals critical factors influencing employee satisfaction, retention, and overall organizational effectiveness. With a total frequency of 1079

incidents, this analysis highlights issues related to recognition and advancement, including pay disparities, the workplace environment, misconduct, and overall organizational dynamics.

Recognition and advancement subcategory

Analyzing organizational culture and workforce dynamics revealed significant challenges for EMS personnel. Pay inequity was one of the most pressing issues identified, accounting for 8.15% of reported concerns. These disparities can cause employees to feel undervalued, negatively impacting their morale and motivation. Research consistently demonstrates that fair compensation is critical to employee satisfaction and retention and that pay inequities can contribute to a toxic work environment [36]. A negative psychological work environment, reported by 7.65% of the respondents, was a significant concern affecting the well-being of EMS personnel. The factors contributing to this adverse environment may include high-stress situations, ineffective management practices, and a lack of supportive leadership. Previous studies have established a correlation between adverse work environments and increased stress and burnout among emergency responders, which can ultimately result in diminished job performance and elevated turnover rates [37]. Organizations must prioritize cultivating a positive work culture that promotes mental well-being and enhances staff resilience.

The supervisor and peer misconduct issue, which constitutes 6.54% of incidents, further exacerbates negative workplace culture in EMS settings. When employees experience or witness misconduct, they can foster an atmosphere of mistrust and fear, discouraging open communication and collaboration. Research indicates that leadership behaviors significantly impact workplace culture; therefore, organizations should implement stringent policies against misconduct and provide supervisor training to promote ethical behavior and accountability [38]. High turnover rates, currently reported at 6.25%, indicate deeper issues within organizational culture. Frequent turnover can disrupt team dynamics and the continuity of care, ultimately negatively affecting patient outcomes. High turnover often reflects dissatisfaction with organizational practices, including insufficient recognition of employee contributions and limited opportunities for advancement. Addressing the root causes of turnover through enhanced management practices and career development opportunities is essential to retaining a qualified EMS workforce. The lack of merit-based promotions (3.51%) and inadequate recognition of achievements (3.03%) further underscore the challenges EMS personnel face. When promotions are not based on performance, they can create a sense of unfairness and demotivation among employees. Additionally,

failing to acknowledge employees' hard work and accomplishments can erode their sense of belonging and commitment to the organization. The literature emphasizes recognizing and rewarding employee achievements to enhance engagement and retention [39]. Finally, free emergency services constitute 2.64% of total operations and can contribute to organizational strain. While offering these services is vital for community support, it may also result in resource limitations and heightened pressure on EMS personnel. Striking a balance between free services and ensuring sufficient funding and support for EMS operations is crucial to sustaining staff morale and operational effectiveness.

Barriers to effective prehospital care

The challenges associated with interagency coordination and support in EMSs are both significant and multifaceted. With a total frequency of 965 incidents, this analysis highlights the critical issues of coordination, jurisdictional conflicts, and inter-organizational relationships that can impede effective emergency response and compromise patient care.

Public awareness and mistrust subcategory

A significant barrier identified was the public's need for more awareness regarding emergency systems, which constituted a substantial portion of the data (12.53%). Many individuals must know how to access emergency services, leading to delays in receiving care during critical situations. This lack of awareness may stem from various factors, including insufficient public education campaigns and limited visibility of EMS operations within the community. Effective public awareness initiatives are crucial to ensure that individuals comprehend how to access EMS services and recognize the importance of timely interventions. The portrayal of the EMS in the media is frequently marked by dramatization and misinformation (3.03%), exacerbating the issue by fostering a distorted perception of these services. Research has demonstrated that harmful or inaccurate representations in the media can lead to public mistrust, ultimately affecting individuals' willingness to seek assistance during emergencies [40].

Misinterpretation of roles and patient urgency subcategory

Another significant subcategory was the misinterpretation of roles and patient urgency. Misunderstanding the roles and responsibilities of EMS personnel (7.38%) can create confusion during emergencies and lead to unrealistic public expectations. For example, patients or bystanders may assume that the EMS can provide services beyond its scope, complicating care delivery and patient interactions. Misjudging the urgency of a patient's condition (3.83%) presents a significant challenge

in prehospital care. In certain instances, patients or bystanders may underestimate the severity of the medical situation, leading to delays in calling for EMS assistance. Conversely, some individuals may overestimate the urgency of their condition, placing an unnecessary burden on emergency services. Implementing effective triage and communication strategies is essential for accurately assessing the urgency of medical conditions and allocating appropriate resources accordingly [41].

Resources and infrastructure limitations category

Analyzing resource and infrastructure limitations within EMSs reveals significant challenges that impede effective operations and delivery of high-quality patient care. With a total frequency of 951 incidents, the data revealed critical areas of concern, including infrastructure deficiencies, equipment issues, and inadequate staffing levels.

Infrastructure deficiency subcategory

Infrastructure deficiencies, including issues that can severely affect EMS performance, are a significant concern. Deficiencies in the support fleet accounted for 7.55% of reported incidents. The availability and condition of emergency vehicles are crucial for ensuring a prompt response to emergencies; shortcomings in this area can lead to delays that jeopardize patient outcomes. A well-maintained fleet is essential for operational readiness, as any vehicle malfunction may result in substantial delays in emergency response times [42]. Inadequate staffing levels, which accounts for 5.64% of the issue, is another critical infrastructure concern. When organizations are understaffed, existing personnel may experience increased workloads, resulting in burnout and diminished job satisfaction. Research indicates that sufficient staffing is essential for effective patient care and operational efficiency within an EMS [43]. Similarly, inadequate emergency bases, representing 5.22% of the issue, can impede timely responses, particularly in geographically diverse areas where access to services is vital for patient outcomes. Poor facility maintenance (5.36%) poses a significant challenge. Prioritizing facility maintenance is crucial for creating a safe and efficient working environment that ultimately benefits both EMS workers and the communities they serve. Adequately maintained facilities can lead to safe working conditions for EMS personnel and adversely affect operational efficiency. Providing appropriate facilities such as ergonomic furniture, high-speed internet, training rooms, and natural lighting is vital for EMS personnel's physical and mental well-being, enabling them to rest and recover between shifts. Research has demonstrated that implementing ergonomic interventions, including providing adequate facilities, enhances job satisfaction and retention [44].

Equipment issue subcategory

In addition to infrastructure deficiencies, equipment issues significantly limit the effectiveness of an EMS. Equipment failure and outdated technology accounted for 7.31% of the reported incidents. Reliable and up-to-date equipment is essential for delivering quality emergency care; when equipment malfunctions or becomes obsolete, it can result in suboptimal patient outcomes. Regular maintenance, timely updates, and investments in new technologies are crucial to ensure that EMS personnel have tools for effective patient care.

Challenges in interagency coordination and support categories

Assessment of interagency coordination and support challenges in EMSs revealed significant barriers that could impede effective emergency response and patient care. With a total frequency of 931 incidents, the data points to critical areas such as coordination issues, jurisdictional conflicts, and inter-organizational relationships.

Coordination issues and jurisdiction conflict subcategory

One of the most pressing challenges identified is delayed backup support, which accounts for 10.10% of the reported incidents. When technicians request assistance from other agencies, these delays can significantly impact the quality of care and compromise patient safety. Such delays may arise from a lack of established protocols for interagency support, underscoring the need for clear communication and collaborative planning among various emergency services. Jurisdictional disputes (9.99%) represent a significant barrier to effective coordination. Conflicts may arise when multiple agencies operate in overlapping jurisdictions, resulting in confusion about which agency is responsible for responding to an emergency. Such disputes can prolong response times and impede the efficient delivery of care, ultimately impacting patient outcomes. Establishing clear lines of authority and formal agreements between agencies is essential to minimize conflicts and ensure swift responses during emergencies [45]. Poor inter-organizational coordination (9.23%) further complicates the emergency response landscape. Effective coordination necessitates established communication channels and collaborative relationships between the EMS, fire, Red Crescent, law enforcement, and other relevant organizations [46]. When these relationships are weak or poorly defined, they can result in miscommunication and operational inefficiencies. Unwarranted interference from law enforcement (3.09%) can disrupt EMS operations and foster an environment of mistrust and tension between agencies. Law enforcement and EMS personnel need to work cohesively, ensuring that the roles of each agency are respected and clearly understood.

Workplace culture and professional satisfaction category

Examining workplace culture and job satisfaction in a prehospital setting revealed several critical issues that impact employee morale and job performance. With a total frequency of 579 incidents, the data highlighted themes related to recognition, career growth, job satisfaction, and lack of motivation and support.

Recognition, career growth, and job satisfaction subcategory

A significant barrier to professional satisfaction was the need for more awareness regarding primary responsibility, which accounted for 6.96% of the reported incidents. When EMS personnel clearly understand their roles and responsibilities, this can lead to clarity, efficiency, and reduced stress during emergency care. Clear communication of job expectations and regular training can mitigate these issues, ensuring all team members are aligned and focused on their duties.

Feeling undervalued and disrespected (1.88%) is a significant issue that undermines job satisfaction. EMS personnel frequently encounter high-stress situations and work extended hours. When their efforts are unrecognized, they can experience frustration and resentment [47]. A workplace culture emphasizing recognition and appreciation is crucial for cultivating a supportive environment that values employee contributions [48]. In addition to a lack of recognition, the inability to cope with job demands (1.32%) and work-life imbalance (1.32%) further contribute to professional dissatisfaction. The demanding nature of EMS often leads to elevated stress levels, and when personnel feel overwhelmed, it can adversely affect their performance. Organizations should implement wellness programs and provide resources to assist staff in managing stress and achieving better work-life balance [49].

Lack of motivation and support subcategory

(3.48%) significantly contribute to job dissatisfaction. When EMS personnel need more motivation or perceive a clear path for career progression, disengagement and reduced commitment to their work can occur. Research indicates that providing avenues for professional growth and establishing a well-defined career trajectory can increase motivation levels and improve job satisfaction [50]. Disengagement and burnout, which affect 2.65% of individuals, are critical issues that may arise from insufficient support and motivation. Burnout undermines individual well-being and can adversely affect team dynamics and patient care. Organizations must prioritize mental health resources and foster a supportive workplace culture that promotes open dialog about stress and burnout [51].

Conclusion

This study highlights the urgent need for targeted interventions to reduce physical violence against EMS personnel. The main findings emphasize that legal and policy deficiencies, such as inadequate punitive measures, are significant contributors to workplace violence, highlighting the need for legislative reforms to protect emergency service workers better. Additionally, improving organizational safety and support—including safety equipment, reporting procedures, and mental health resources—is essential for employee well-being. Addressing these areas and promoting job satisfaction and work-life balance will result in a safer and more resilient workplace for EMS personnel, benefiting responders and their communities.

Limitations

This study has several limitations that should be considered in future research. First, methodological limitations, including potential biases in data collection methods and the reliance on self-reports, may introduce subjectivity that could skew the results. Another limitation of the present study, given the overall goal of examining the factors contributing to physical violence in terms of their frequency and significance in the interview text, is that increasing the number of codes within a category may consequently inflate its frequency relative to other categories. This could lead to either an underestimation or overestimation of the causes related to the frequency and significance of codes within a category. Although this may differ, it should also be investigated in other contexts.

Abbreviations

EMTs	Emergency Medical Technicians
EMS	Emergency Medical Services
WPV	Workplace Violence

Acknowledgements

We sincerely thank the prehospital heads in Iran's western region departments for enabling this study. We also want to express our gratitude to the support in facilitating who generously donated their time to help Wish with extended research.

Author contributions

AKH completed all interviews, obtained ethical approval, and drafted the manuscript. AF and AKH completed the study's conception, design, analysis, and interpretation of results. MT contributed to the study's design, analysis, interpretation of the findings, and manuscript preparation. RS helped with the data analysis and interpretation. After review and editing, all authors ultimately approved the manuscript.

Funding

The Research Council of the Asadabad Medical Sciences School permitted this study to be conducted as a research project (No. 175).

Data availability

The datasets used and analyzed during the current study are available upon reasonable request from the corresponding author and permission from the Ethics Committee of the Asadabad School of Medical Sciences.

Declarations

Ethics approval and consent to participate

The Ethical Committee of the Asadabad School of Medical Sciences (IR.ASAUMS.REC.1403.015) reviewed and approved the studies involving human participants. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) to publish any potentially identifiable images or data included in this study. Throughout this study, the ethical considerations outlined in the Declaration of Helsinki have been adhered to from the initial design phase until now.

Consent for publication

Not Applicable.

Competing interests

The authors declare no competing interests.

Clinical trial number

Not Applicable.

Author details

¹Department of Nursing, Malayer School of Medical Sciences, Hamadan University of Medical Sciences, Hamadan, Iran

²Nursing Department, School of Nursing and Midwifery, Chronic Diseases (Home Care) Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

³Department of Emergency Medicine, School of Medicine, Besat Hospital, Hamadan University of Medical Sciences, Hamadan, Iran

⁴Department of Prehospital Emergency Medicine, Asadabad School of Medical Sciences, Asadabad, Iran

Received: 17 December 2024 / Accepted: 3 February 2025

Published online: 11 February 2025

References

1. Pourshaikhian M, Abolghasem Gorji H, Aryankhesal A, Khorasani-Zavareh D, Barati A. A systematic literature review: Workplace Violence against Emergency Medical Services Personnel. *Arch Trauma Res.* 2016;5(1):e28734.
2. Khazaei A, Afshari A, Khatiban M, Borzou SR, Oshvandi K, Nabavian M, et al. Perceptions of professional challenges by emergency medical services providers: a qualitative content analysis study. *BMC Emerg Med.* 2024;24(1):38.
3. Sahebi A, Golitaleb M, Moayed S, Torres M, Sheikhbardsiri H. Prevalence of workplace violence against health care workers in hospital and pre-hospital settings: an umbrella review of meta-analyses. *Front Public Health.* 2022;10:895818.
4. Hoell A, Kourmpeli E, Dressing H. Work-related posttraumatic stress disorder in paramedics in comparison to data from the general population of working age. A systematic review and meta-analysis. *Front Public Health.* 2023;11:1151248.
5. Khazaei A, Navab E, Esmaili M, Masoumi H. Prevalence and related factors of post-traumatic stress disorder in Emergency Medical technicians; a cross-sectional study. *Arch Acad Emerg Med.* 2021;9(1):e35.
6. Maguire BJ, Browne M, O'Neill BJ, Dealy MT, Clare D, O'Meara P. International Survey of Violence against EMS Personnel: physical violence report. *Prehosp Disaster Med.* 2018;33(5):526–31.
7. Sheikhbardsiri H, Afshar PJ, Baniasadi H, Farokhzadian J. Workplace Violence against Prehospital Paramedic Personnel (City and Road) and factors related to this type of violence in Iran. *J Interpers Violence.* 2022;37(13–14):Np11683–98.
8. Sheikhbardsiri H, Tavan A, Afshar PJ, Salahi S, Heidari-Jamebozorgi M. Investigating the burden of disease dimensions (time-dependent, developmental, physical, social and emotional) among family caregivers with COVID-19 patients in Iran. *BMC Prim Care.* 2022;23(1):165.
9. McGuire SS, Lampman MA, Smith OA, Clements CM. Impact of Workplace Violence against Emergency Medical Services (EMS). *Prehosp Emerg Care.* 2024;1–9.
10. Khoshab H, Nouhi E, Tirgari B, Ahmadi F. Invisible cobwebs in teamwork-impediments to the care of patients with heart failure: a qualitative study. *Int J Health Plann Manage.* 2018;33(2):e663–73.
11. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care.* 2007;19(6):349–57.
12. Krug EG, Mercy JA, Dahlberg LL, Zwi AB. The world report on violence and health. *Lancet.* 2002;360(9339):1083–8.
13. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005;15(9):1277–88.
14. Ahmed SK. The pillars of trustworthiness in qualitative research. *J Med Surg Public Health.* 2024;2:100051.
15. Essentials of nursing research: Methods, appraisal, and utilization Denise F Polit essentials of nursing research: methods, appraisal, and utilization, Cheryl Tatano Beck Lipincott Williams and Wilkins 554 £24.95 0781749727 0781749727 [Formula: see text]. *Nurse Res.* 2006;13(4):91–2.
16. Rafeea F, Al Ansari A, Abbas EM, Elmusharaf K, Abu Zeid MS. Violence toward health workers in Bahrain Defense Force Royal Medical Services' emergency department. *Open Access Emerg Med.* 2017;9:113–21.
17. Asadi-Jabehdar R, Dashti-Kalantar R, Mehri S, Mirzaei A, Soola AH. Assessing unsafe behaviors and their relationship with work-related factors among EMS staff in Iran: a cross-sectional study. *BMC Emerg Med.* 2024;24(1):70.
18. Feldkamp T, Langer M, Wies L, König CJ. Justice, trust, and moral judgements when personnel selection is supported by algorithms. *Eur J Work Organizational Psychol.* 2024;33(2):130–45.
19. Maguire BJ, Hunting KL, Smith GS, Levick NR. Occupational fatalities in emergency medical services: a hidden crisis. *Ann Emerg Med.* 2002;40(6):625–32.
20. Council NR. In: Reiss AJ Jr, Roth JA, editors. Understanding and preventing violence, volume 3: Social influences. Washington, DC: National Academies; 1994. p. 592.
21. Lim MC, Jeffree MS, Saupin SS, Giloi N, Lukman KA. Workplace violence in healthcare settings: the risk factors, implications and collaborative preventive measures. *Ann Med Surg (Lond).* 2022;78:103727.
22. Seyed Bagheri SH, Dehghan M, Khoshab H. Post-traumatic stress disorder and post-traumatic growth among Muslim CPR survivors. *J Relig Health.* 2020;59(6):3157–67.
23. Strandås M, Vizcaya-Moreno MF, Ingstad K, Sepp J, Linnik L, Vaismoradi M. An Integrative Systematic Review of Promoting Patient Safety within Prehospital Emergency Medical Services by paramedics: a Role Theory Perspective. *J Multidiscip Healthc.* 2024;17:1385–400.
24. Purnell TS, Marshall JK, Olorundare I, Stewart RW, Sisson S, Gibbs B, et al. Provider perceptions of the Organization's Cultural competence climate and their skills and behaviors targeting patient-centered care for socially At-Risk populations. *J Health Care Poor Underserved.* 2018;29(1):481–96.
25. Khademipour G, Nakhaee N, Anari SMS, Sadeghi M, Ebrahimnejad H, Sheikhbardsiri H. Crowd simulations and determining the critical density point of emergency situations. *Disaster Med Public Health Prep.* 2017;11(6):674–80.
26. Patel MD, Williams JG, Bachman MW, Cyr JM, Cabañas JG, Miller NS, et al. Effectiveness of a Novel Rapid Infusion Device and Clinician Education for early fluid therapy by Emergency Medical Services in Sepsis patients: a Pre-post Observational Study. *Prehosp Emerg Care.* 2024;28(6):753–60.
27. Ferron EM, Kosny A, Tonima S. Workplace Violence Prevention: flagging practices and challenges in hospitals. *Workplace Health Saf.* 2022;70(3):126–35.
28. Henshall C, Davey Z, Jackson D. Nursing resilience interventions-A way forward in challenging healthcare territories. *J Clin Nurs.* 2020;29(19–20):3597–9.
29. Eshah N, Al Jabri OJ, Aljboor MA, Abdalrahim A, ALBashtawy M, Alkhawaldeh A, et al. Workplace Violence against Healthcare Workers: a Literature Review. *SAGE Open Nurs.* 2024;10:23779608241258029.
30. Fisher MP, Lavender CD. Ensuring Optimal Mental Health Programs and policies for First Responders: opportunities and challenges in one U.S. state. *Community Ment Health J.* 2023;59(7):1341–51.
31. Fricke J, Siddique SM, Douma C, Ladak A, Burchill CN, Greysen R, et al. Workplace violence in healthcare settings: a scoping review of guidelines and systematic reviews. *Trauma Violence Abuse.* 2023;24(5):3363–83.
32. Hadian M, Jabbari A, Mousavi SH, Sheikhbardsiri H. Medical tourism development: a systematic review of economic aspects. *Int J Healthc Manag.* 2021;14(2):576–82.
33. O'Daniel M, Rosenstein AH. Advances in Patient Safety Professional communication and team collaboration. In: Hughes RG, editor. Patient safety and quality: an evidence-based handbook for nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008.
34. Golding SE, Horsfield C, Davies A, Egan B, Jones M, Raleigh M, et al. Exploring the psychological health of emergency dispatch centre operatives: a systematic review and narrative synthesis. *PeerJ.* 2017;5:e3735.

35. Kim S, Lynn MR, Baernholdt M, Kitzmiller R, Jones CB. How does Workplace Violence-Reporting Culture affect Workplace Violence, Nurse Burnout, and Patient Safety? *J Nurs Care Qual.* 2023;38(1):11–8.
36. Kaan Namal M, Tufan C, Sani Mert I, Arun K. Decent work, employee satisfaction, and the Mediating Role of Social Courage in reducing turnover. *Sage Open.* 2024;14(2):21582440241242060.
37. Salama W, Abdou AH, Mohamed SAK, Shehata HS. Impact of work stress and job burnout on turnover intentions among Hotel employees. *Int J Environ Res Public Health.* 2022;19(15).
38. Al Halbusi H, Williams KA, Ramayah T, Aldieri L, Vinci CP. Linking ethical leadership and ethical climate to employees' ethical behavior: the moderating role of person–organization fit. *Personnel Rev.* 2021;50(1):159–85.
39. Owens K, Eggers J, Keller S, McDonald A. The imperative of culture: a quantitative analysis of the impact of culture on workforce engagement, patient experience, physician engagement, value-based purchasing, and turnover. *J Healthc Leadersh.* 2017;9:25–31.
40. Han R, Xu J, Pan D. How media exposure, Media Trust, and Media Bias Perception Influence Public Evaluation of COVID-19 Pandemic in International Metropolises. *Int J Environ Res Public Health.* 2022;19(7).
41. Adhikari B, Shrestha L, Bajracharya M, Aryal N, Rajbhandari A, Maharjan RK, et al. Triage practices for emergency care delivery: a qualitative study among febrile patients and healthcare workers in a tertiary care hospital in Nepal. *BMC Health Serv Res.* 2024;24(1):180.
42. Haghani A, Yang S. Real-Time Emergency Response Fleet Deployment: Concepts, Systems, Simulation & Case Studies. 382007. pp. 133–62.
43. Committee on Guidance for Establishing Crisis Standards of Care for Use in Disaster S. Institute of M. Crisis standards of Care: A systems Framework for Catastrophic Disaster Response. National Academies Press (US) Copyright 2012 by the National Academy of Sciences. Washington (DC): All rights reserved.; 2012.
44. Conrad K, Reichelt P, Lavender S, Gacki-Smith J, Hattle S. Designing ergonomic interventions for EMS workers: Concept generation of patient-handling devices. *Appl Ergon.* 2008;39:792–802.
45. Guerrero AM, Bodin Ö, Nohrstedt D, Plummer R, Baird J, Summers R. Collaboration and individual performance during disaster response. *Glob Environ Change.* 2023;82:102729.
46. Kiarsi M, Amiresmaili M, Mahmoodi MR, Farahmandnia H, Nakhaee N, Zareian A, et al. Heat waves and adaptation: a global systematic review. *J Therm Biol.* 2023;116:103588.
47. Yaghoubi-poor M, Bagheri SHS, Khoshab H. The mediating role of difficulties in emotion regulation on attachment styles of adolescents with conduct disorders. *Int J Adolesc Med Health.* 2021;33(5).
48. Weziak-Bialowolska D, Bialowolski P. Associations of recognition at work with subsequent health and quality of life among older working adults. *Int Arch Occup Environ Health.* 2022;95(4):835–47.
49. Cohen C, Pignata S, Bezak E, Tie M, Childs J. Workplace interventions to improve well-being and reduce burnout for nurses, physicians and allied healthcare professionals: a systematic review. *BMJ Open.* 2023;13(6):e071203.
50. Shiri R, El-Metwally A, Sallinen M, Pöyry M, Härmä M, Toppinen-Tanner S. The role of Continuing Professional Training or Development in maintaining current employment: a systematic review. *Healthc (Basel).* 2023;11:21.
51. Hadian M, Jabbari A, Abdollahi M, Hosseini E, Sheikhbardsiri H. Explore pre-hospital emergency challenges in the face of the COVID-19 pandemic: a quality content analysis in the Iranian context. *Front Public Health.* 2022;10:864019.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.