

# EFFECTS OF OCCUPATIONAL SAFETY PERFORMANCE ON WORK ENGAGEMENT OF EMERGENCY WORKERS: MEDIATING ROLE OF JOB SATISFACTION

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## ABSTRACT

**INTRODUCTION:** The issue of occupational health and safety (O.H.S.) is paramount for emergency personnel who are consistently exposed to high-stress situations. Ensuring these workers feel safe, not only physically but mentally and socially, is increasingly recognized as crucial. With the directives of the International Labor Organization (I.L.O.) and pertinent legal regulations, the emphasis on occupational health is surging. Recently, low motivation and inefficiency in emergency workers have begun to manifest as organizational issues. Safe and healthy working environments for emergency personnel are imperative to minimize these problems and reduce work accidents and occupational diseases. This study posits that the occupational safety performance of emergency workers will augment their work engagement and job satisfaction. Additionally, it is hypothesized that job satisfaction will mediate the relationship between occupational safety performance and work engagement.

**MATERIAL AND METHODS:** A model delineating the relationship between occupational safety performance, job satisfaction, and work engagement among emergency personnel was established. Data were collected from 385 emergency personnel based in Istanbul, Türkiye, to assess their perceptions of occupational safety performance, work engagement, and job satisfaction. Using the snowball sampling method, a questionnaire comprising scales for occupational safety performance, job satisfaction, work engagement, and demographic questions was distributed.

**RESULTS:** Among emergency personnel, occupational safety performance exhibited a significant positive influence on both job satisfaction and work engagement. Furthermore, job satisfaction had a notable positive effect on work engagement. Crucially, the research indicated that job satisfaction mediated the relationship between occupational safety performance and work engagement.

**CONCLUSIONS:** This study shows that improving emergency sector occupational safety can boost employee engagement and work satisfaction. Job satisfaction mediates occupational safety performance and work engagement, underlining its importance in emergency workforces. These findings are essential for creating a secure and inspiring workplace for emergency workers and driving policies that emphasize their well-being.

**KEYWORDS:** cultural safety; job satisfaction; occupational safety performance; occupational health and safety; occupational psychology

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## INTRODUCTION

The International Labor Organization (I.L.O.) estimates that around 2.3 million women and men worldwide succumb to work-related accidents or illnesses each year. This number corresponds to more than 6000 deaths every day. The I.L.O. updates these estimates periodically, and the updates point to an increase in accidents and occupational diseases [1]. Occupational accidents and injuries can cause significant pain and suffering [2, 3]. Furthermore, labor markets can create huge financial burdens for wider economies and organizations. Due to the strong relationship between occupational safety performance and occupational accidents, commercial and academic interest in occupational safety performance has gained momentum recently [4]. Employers, O.S.H. professionals, and social politicians should focus on improving occupational safety performance as a way to improve workplace safety [5]. However, in order to improve occupational safety performance and accordingly, reduce occupational accidents and injuries, it is necessary to first understand the factors affecting occupational safety performance.

Strategic management of human resources it is very important for obtaining various organizational and individual results, including the behavior of employees [6]. For this reason, it is useful to investigate possible factors affecting occupational safety performance [7, 8]. Many studies carried out in today's organizations are based on the fact that when decent working conditions are offered for employees, it will provide many benefits not only to employees but also to organizations. Based on the studies on occupational health and safety and job satisfaction, it has been found that O.H.S. has a positive effect on job satisfaction [9, 10].

Research has shown that there is a positive relationship between the measured level of employee engagement and business unit outcomes such as higher productivity, better quality, lower employee turnover, greater customer satisfaction, and increased profitability [11, 12]. In addition, there are studies in the literature that reveal the relationship between occupational safety performance and employee engagement [13, 14]. In these studies, it is seen that people who experience fewer work accidents have more work engagement. In this regard, Molson Coors beverage company saved 1.7 million dollars in safety costs by strengthening employee loyalty [15]. Based on this outcome, it could be

argued that employees' work engagement will be higher in organizations that provide a physically, cognitively, and emotionally healthy and safe working environment.

This study aimed to determine the mediating role of job satisfaction in the relationship between occupational safety performance and work engagement, which will provide individual, organizational, and macro-level development competition. The conceptual structure, in which job satisfaction constitutes a mediating variable, was theorized and analyzed with the structural equation model. This research, in addition to understanding the advantages of having employees with high occupational safety performance and work engagement, also provides interesting information that will help to understand the advantages of using the power of job satisfaction to be competitive and profitable.

## Literature review and hypotheses

As with the safety climate, which is considered a subset of the organizational climate, occupational safety performance is also considered a sub-system of organizational performance. However, it is considered that the safety climate is among the antecedents of occupational safety performance [16]. Occupational safety performance components represent the main dimensions of employees' behaviors related to occupational safety activities [17–19]. General safety performance, on the other hand, refers to the actions or behaviors exhibited for the improvement of the health and safety of individuals, employees, customers, the public, and the environment [20].

Work engagement theory argues that increasing the performance of employees can be achieved by them devoting themselves to their work through emotional investment [21–23]. In work engagement, people express themselves physically, cognitively, and emotionally during role performances [22]. Work engagement is an independent, pervasive, positive, and satisfying psychological state characterized by energy, focus, and immersion in work [24]. Employees with high work engagement have more energy and interest in the job. Therefore, they do not care about the time spent on work [25–27]. As a natural consequence of this, they can continue to work efficiently for longer hours. Bakker, Albrecht, and Leiter [28] define work engagement as a high level of work-oriented energy and work participation. At this point, participation is a motivational

concept [29, 30]. It focuses on the internalization of the missions of individuals and organizations [31]. Work engagement is an attitudinal-motivational construct derived from organizational behavior research. Work engagement and motivation can be thought of as a reflection of employees' reactions to the "fit" between technical and social systems. For this reason, positive psychological states of employees, such as work engagement, have the potential to increase motivation.

Although work engagement has received wide attention in research, its relationship with the concept of safety has rarely been empirically investigated [32]. Kahn [22], safety and work engagement have been associated as structures that affect people's interaction with their work in the presence of safe working conditions, and that employees leave their jobs personally in the absence of safe working conditions. "Personal participation", closely related to work engagement, is considered risky when situations are inconsistent and unpredictable. According to Kahn, people will feel safe, when they have no problems with their commitment to work.

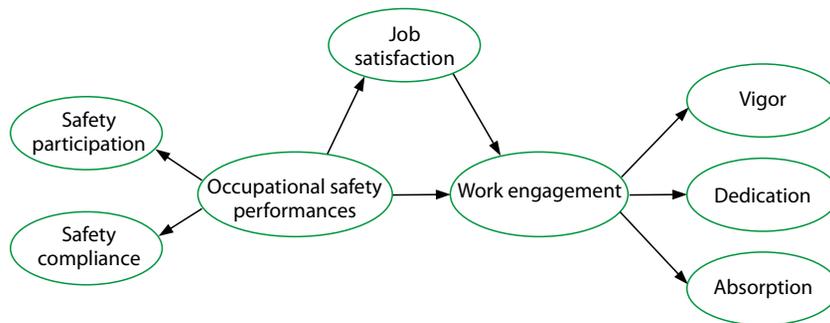
Accordingly, people's work engagements are shaped by their perceptions of safety. Harter et al. [13] in his study found that units with lower employee engagement experienced 62% more adverse safety events. In addition, the literature found that employees with high work engagement were five to seven times less likely to experience a safety incident than others, and the average cost of any safety incident among employees with high work engagement was approximately one-fourth, compared to employees with low work engagement. There are studies that found that the rate is lower [11, 12, 15].

It is known that there is an internal relationship between job commitment and job satisfaction. Researchers have compared employees' satisfaction with the organizational environment and organizational management and found that their satisfaction with job characteristics is an important factor affecting job engagement [33]. Vroom [34] defined job satisfaction as "positive attitudes towards work". Hoppock [35] defines job satisfaction as the combination of physiological, psychological, and environmental factors that cause the individual to express satisfaction with their job. Job satisfaction is significantly related to the satisfaction of employees with their jobs and their productive work [36, 37]. In this context, employees who feel safe will be more moti-

vated for high job satisfaction. On the other hand, it is known that O.H.S. practices have a positive effect on the job satisfaction of employees [9, 10, 38–40]. Ajala [41] analyzed the impact of the workplace environment on employee well-being and productivity. He found that workplace characteristics and good communication networks in the workplace affect employee well-being, health, performance, and productivity. Ayim and Gyekye [42] examined the relationship between workers' workplace safety, job satisfaction, and accident frequency, a positive relationship was found between job satisfaction and safety climate. Sembe and Ayuo [43], occupational health and safety management practices increase job satisfaction among employees. Tengilimoğlu et al. [44] found a significant relationship between safety performance and job satisfaction. Emergency workers, such as paramedics, firefighters, and emergency room staff, frequently operate in high-stress environments, where the risk of occupational hazards is considerably elevated [45–54]. These individuals often encounter traumatic situations, unpredictable hours, and demanding physical conditions, all of which can substantially impact their occupational safety and overall well-being. Given these distinct challenges, understanding safety performance and its implications for such a workforce becomes even more vital. Occupational accidents and injuries, apart from causing immense personal anguish, can also impose substantial financial burdens on economies and organizations. Given the clear link between occupational safety performance and accidents, there's been a surge in both commercial and academic interest in understanding safety performance, particularly in high-risk sectors like emergency services [55–58].

Based on the literature and empirical studies [59–63], it is suggested that occupational safety performance affects work engagement and job satisfaction is the mediator variable in this interaction. The hypotheses and model (Fig. 1) created in the light of the reasons mentioned are as follows:

- H1: occupational safety performance has a positive effect on work engagement;
- H2: occupational safety performance has a positive effect on job satisfaction;
- H3: job satisfaction has a positive effect on work engagement;
- H4: job satisfaction has a mediating role in the relationship between occupational safety performance and work engagement.



**FIGURE 1.** Conceptual framework

## MATERIAL AND METHODS

### Study procedure and participants

This study aimed to assess the impact of occupational safety performance on work engagement and job satisfaction of healthcare professionals, specifically doctors and paramedics, within the emergency sector. We also examined the mediating role of job satisfaction in the relationship between occupational safety performance and work engagement. The procedure for this study was approved by Istanbul Aydin University (Reference number: 2022/03). Data for this research was collected through an online questionnaire hosted on Google Forms. The target population comprised a representative sample of emergency healthcare professionals, including doctors and paramedics, based in Istanbul, Turkey. Employing the “Specific Sampling Method” ensured that the participants in the study accurately represented the broader emergency healthcare community.

The questionnaire used to obtain the data consists of four parts. In the first part, there are demographic questions, followed by questions consisting of “job safety performance”, “work engagement” and “job satisfaction” scales, respectively. The answers were taken on a 5-point Likert scale (1 = I strongly disagree, 5 = I strongly agree). Information on the scales used in the study is given below.

**Occupational Safety Performance Scale:** The scale, which was created by Vinodkumar and Bhasi [64], and whose Turkish validity and reliability studies were conducted by Ekingen [19], measures “safety involvement” (4 items) and “safety compliance” (4 items) dimensions.

**Job Satisfaction Scale:** Başol and Çömlekçi [65] conducted the Turkish validity-reliability study of the job satisfaction scale developed by Brayfield and Rothe [66], and shortened by Judge et al. [67]. The scale consists of a single factor.

**Work Engagement Scale:** The Turkish adaptation of the scale developed by Schaufeli et al. [18], was made by Eryılmaz and Doğan [68] and Özkalp and Meydan [63], and the final version was shaped by Güler et al. [23]. An alternative version of the UWES-6 form was used. The scale has three sub-dimensions, each consisting of two items: being energetic, devotion and immersion.

### Statistical analyses

In this study, a method consisting of two stages, the measurement model and the structural model, was applied [70]. Confirmatory factor analysis was used to test the measurement model, and structural equation model analysis was used to test the structural model. Structural equation modeling is a statistical approach used to test and predict causal relationships and verify structural theories [71]. By applying the structural equation model analysis, the structural relationships between occupational safety performance, work engagement, and job satisfaction, were examined, and the mediating role of job satisfaction was tested. In order to discuss the intermediary role, the following conditions must be met; i) the total effect of the independent variable on the dependent variable must be statistically significant, ii) the observed indirect effect must be statistically significant, and iii) tV.A.F. calculated Variance Accounted For ( $VAF = \text{indirect effect} / \text{total effect} * 100$ ) value must be greater tV.A.F. 20% [72]. Variance Accounted For value; If it is over 80%, it is considered full mediation, between 20% and 80% partial mediation, and below 20% there is no mediation role.

Some assumptions were checked before the analysis. Skewness and kurtosis coefficients in the range of  $\pm 1.5$  indicate that the data have a normal distribution [73, 74]. The calculated coefficients ( $-1.27 \leq \text{Skewness} \leq -0.97$ ,  $0.46 \leq \text{Kurtosis} \leq 1.24$ )

showed that the data used in this study had a normal distribution. According to the Cook distance values calculated for the research data, there are no multivariate extreme values in the data set (Cook V.I.F.tance < 1). VIF > 10 values indicate multicollinearity [75]. The high e.V.I.F. calculated VIF value was 3.20, and this value showed that there was no multicollinearity between the variables. Analyses were performed using the IBM SPSS AMOS 24.0 statistical package program.

## RESULTS

Of the 400 healthcare professionals in the emergency sector who were approached for the study, 385 participated, yielding a response rate of 96.25% (Tab. 1). This sample comprised a mix of genders and roles within the emergency healthcare sector. Out of the 385 participants, 235 were doctors, accounting for approximately 61% of the sample. Emergency doctors are typically responsible for assessing, diagnosing, and treating patients who require immediate medical attention, whether it is due to injury or acute illness. The remaining 150 participants were paramedics, making up roughly 39% of the sample. Paramedics are trained healthcare professionals who provide emergency on-the-spot treatment and are vital for stabilizing and transporting patients to hospitals. They often work in ambulances and are among the first responders in emergencies.

### Measurement model

Confirmatory factor analysis (C.F.A.) was applied to test the measurement model. Calculated fit values ( $\chi^2 = 345.00$ ;  $df = 136$ ;  $\chi^2/df = 2.54$ ;  $GFI = 0.88$ ;  $AGFI = 0.91$ ;  $TLI = 0.96$ ;  $CFI = 0.97$ ;  $IFI = 0.97$ ;  $SRMR = 0.04$ ;  $RMSEA = 0.06$ ), showed that the data were agreeable with the model tested [76–78]. The factor loads of the items in the tested model ranged from 0.69 to 0.95. Calculated factor loads are statistically significant at each 0.001 level (Tab. 2).

By calculating the Cronbach Alpha coefficients, the reliability levels of the scales based on internal consistency were examined. The alpha coefficients calculated for the factors took values between 0.88 and 0.94. Alpha coefficients of 0.70 and higher indicate that the reliability based on internal consistency is at a sufficient level [76–79]. In order to examine the convergence and divergence validity of the factors in the measurement model, Composite Reliability (C.R.), Average Variance Extracted (AVE),

Maximum Shared Variance (MSV), Maximal Reliability [MaxR(H)] values, were calculated. The obtained values are shown in Table 2.

The values calculated to examine the discriminant and convergent validity are given in Table 2. Providing C.R. > 0.70 and AVE > 0.50 conditions indicates that the internal reliability criteria are met. Meeting the C.R. > AVE condition indicates that convergent validity is achieved [80]. The AVE > MSV condition was largely met for the factors, indicating that discriminant validity was achieved. Finally, it was observed that the MaxR(H) > C.R. condition was met. This situation supports that discriminant validity is provided [81]. As a result, evidence showed that the six-factor measurement model was validated. It has been understood that the reliability of the factors based on internal consistency is sufficient. It was observed that discriminant and convergent validity were provided between the factors.

### Structural model

Before testing the structural model, the relationships between occupational safety performance, work engagement, and job satisfaction were examined by calculating Pearson correlation coefficients. The obtained coefficients are shown in Table 3.

When Table 3 is examined, Safety participation scores and Vigor ( $r = 0.512$ ;  $p < 0.01$ ), Dedication ( $r = 0.574$ ;  $p < 0.01$ ), Absorption ( $r = 0.453$ ;  $p < 0.01$ ), W.E.S. Total (There are moderate positive correlations between  $r = 0.586$ ;  $p < 0.01$ ) and Job satisfaction ( $r = 0.554$ ;  $p < 0.01$ ) scores.

Vigor ( $r = 0.516$ ;  $p < 0.01$ ), Dedication ( $r = 0.589$ ;  $p < 0.01$ ), Absorption ( $r = 0.482$ ;  $p < 0.01$ ), W.E.S., WES Total ( $r = 0.604$ ; There are moderate positive correlations between  $p < 0.01$ ) and Job satisfaction ( $r = 0.574$ ;  $p < 0.01$ ) scores. OSP total scores with Vigor ( $r = 0.540$ ;  $p < 0.01$ ), Dedication ( $r = 0.611$ ;  $p < 0.01$ ), Absorption ( $r = 0.49$  W.E.S.;  $p < 0.01$ ), WES Total ( $r = 0.625$ ; There are moderate positive correlations between  $p < 0.01$ ) and Job satisfaction ( $r = 0.593$ ;  $p < 0.01$ ) scores. Job satisfaction scores with Vigor ( $r = 0.746$ ;  $p < 0.01$ ), Dedication ( $r = 0.746$ ;  $p < 0.01$ ), Absorption ( $r = 0.591$ ;  $p < 0.01$ ), and WES Total ( $r = 0.807$ ; There are moderate and high-level positive correlations between  $p < 0.01$  scores).

Figure 3 shows the structural model tested. In the model, occupational safety performance is the independent variable, work engagement is the dependent variable, and job satisfaction is the medi-

Variable	Level	n	[%]
Gender	Male	210	54.5
	Woman	175	45.5
Age	18–24	131	34.0
	25–30	93	24.2
	31–40	106	27.5
	41–50	47	12.2
	51 and above	8	2.1
Marital status	Single	240	62.3
	Married	145	37.7
Graduation	High school	19	4.9
	Associate degree	153	39.7
	License	101	26.2
	Degree	92	23.9
	Doctorate	20	5.2
Total working time	Less than 1 year	81	21.0
	1–5 years	120	31.2
	6–10 years	76	19.7
	11–15 years	58	15.1
	16 years and above	50	13.0
Sector	Education	87	22.6
	Service	155	40.3
	Manufacturing industry	46	11.9
	Build	82	21.3
	Tunnel–metro construction	15	3.9
Task	I am not an occupational safety expert/technician	0	0
	I am an occupational safety specialist/technician	385	100.0

ating variable. Fit values calculated by testing the model ( $\chi^2 = 354.69$ ;  $df = 143$ ;  $\chi^2/df = 2.48$ ;  $GFI = 0.91$ ;  $AGFI = 0.88$ ;  $TLI = 0.96$ ;  $CFI = 0.97$ ;  $IFI = 0.97$ ;  $SRMR = 0.04$ ;  $RMSEA = 0.06$ ) showed that the data were acceptable with the model [56–58]. Total, direct, and indirect effects in the tested model are shown in Table 4.

Table 4 shows standardized estimates, standard errors, p values, and confidence intervals. When the total effect value was examined, the predictive power of occupational safety performance was 0.69 [95% confidence interval (CI): 0.59, 0.77,  $p < 0.001$ ]. According to this result, the H1 hypothesis was confirmed. Considering the direct effect values, the power of job safety performance to directly predict work engagement was 0.20 (95% CI: 0.06, 0.32,  $p < 0.001$ ), and the power to directly pre-

dict job satisfaction was 0.63 (95% CI: 0.52, 0.72,  $p < 0.001$ ). The power of job satisfaction to directly predict work engagement was 0.78 (95% CI: 0.66, 0.90,  $p < 0.001$ ). According to the results obtained, H2 and H3 hypotheses were confirmed.

When the indirect effect value was examined, the power of occupational safety performance to indirectly predict work engagement was 0.49 (95% CI: 0.39, 0.61,  $p < 0.01$ ). A large proportion of the overall impact of occupational safety performance on work engagement is through job satisfaction. According to the results obtained, the H4 hypothesis was confirmed. Job satisfaction partially mediates between occupational safety performance and work engagement ( $VAF = 71\%$ ).

In the model in Figure 3, occupational safety performance and job satisfaction explained 85% of

**Table 2. Validity and reliability analysis results**

Variable	Item no.	Factor load	Cronbach Alpha	CR	AVE	MSV	MaxR (H)
Vigor	We1	0.94*	0.94	0.93	0.89	0.65	0.94
	We2	0.95*					
Dedication	We3	0.94*	0.93	0.92	0.86	0.72	0.93
	We4	0.92*					
Absorption	We5	0.95*	0.90	0.90	0.82	0.51	0.92
	We6	0.86*					
Safety participation	Osp1	0.86*	0.93	0.92	0.76	0.84	0.93
	Osp2	0.89*					
	Osp3	0.89*					
	Osp4	0.86*					
Safety compliance	Osp5	0.69*	0.88	0.88	0.64	0.84	0.89
	Osp6	0.86*					
	Osp7	0.84*					
	Osp8	0.80*					
Job satisfaction	Js1	0.81*	0.92	0.92	0.70	0.72	0.93
	Js2	0.78*					
	Js3	0.82*					
	Js4	0.88*					
	Js5	0.87*					

\*p < 0.001; Osp — occupational safety performances; We — work engagement; Js — job satisfaction

**Table 3. Pearson correlation coefficients**

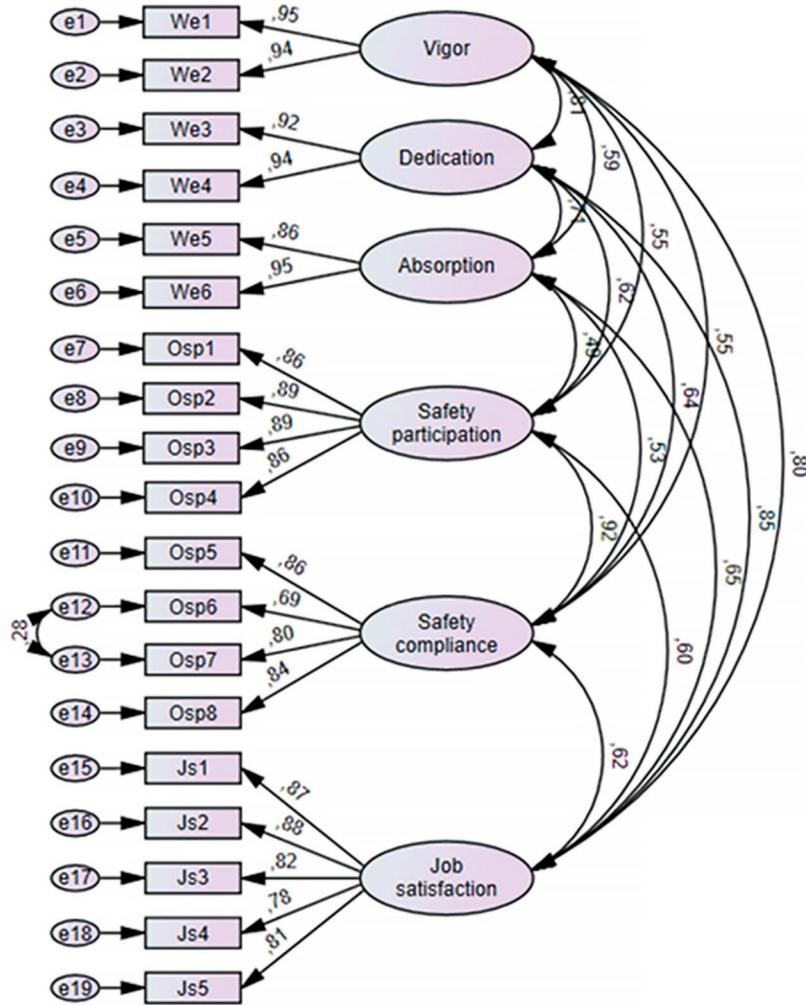
	Variables	1.	2.	3.	4.	5.	6.	7.	8.
1.	Safety participation	1							
2.	Safety compliance	0.812*	1						
3.	OSP total	0.951*	0.953*	1					
4.	Vigor	0.512*	0.516*	0.540*	1				
5.	Dedication	0.574*	0.589*	0.611*	0.755*	1			
6.	Absorption	0.453*	0.482*	0.492*	0.545*	0.649*	1		
7.	WES total	0.586*	0.604*	0.625*	0.870*	0.915*	0.841*	1	
8.	Job satisfaction	0.554*	0.574*	0.593*	0.746*	0.786*	0.591*	0.807*	1
	M	17.27	16.78	34.05	7.78	8.06	7.71	23.56	19.14
	SD	3.20	3.28	6.17	1.93	2.00	2.06	5.23	4.76

\*p < 0.01; n = 385; OSP — Occupational Safety Performances; WES — Work Engagement Scale

the variation in work engagement ( $R^2 = 0.85$ ). This result showed that occupational safety performance and job satisfaction significantly affected work engagement ( $f^2 = 5.67$ ). Occupational safety performance explained 40% of the change in job satisfaction ( $R^2 = 0.40$ ). Occupational safety performance significantly affects job satisfaction ( $f^2 = 0.67$ ).

## DISCUSSION

Our findings show that in high-pressure environments like emergency healthcare, ensuring the safety and well-being of personnel is paramount. Emergency personnel — including doctors and paramedics — often find themselves at the frontline of critical situations, where the risks and stakes are



**FIGURE 2.** Measurement pattern,  $\chi^2 = 345.00$ ; SD = 136;  $p < 0.01$

significant. This is where occupational safety takes on heightened significance.

In this research focusing on emergency healthcare professionals, a model delineating the relationship between occupational safety performance and work engagement, with job satisfaction playing a mediating role, was evaluated. Analysis revealed a moderate positive correlation between occupational safety performance, work engagement ( $r = 0.625$ ;  $p < 0.01$ ), and job satisfaction ( $r = 0.593$ ;  $p < 0.01$ ). A notably high correlation was observed between job satisfaction and work engagement ( $r = 0.807$ ;  $p < 0.01$ ).

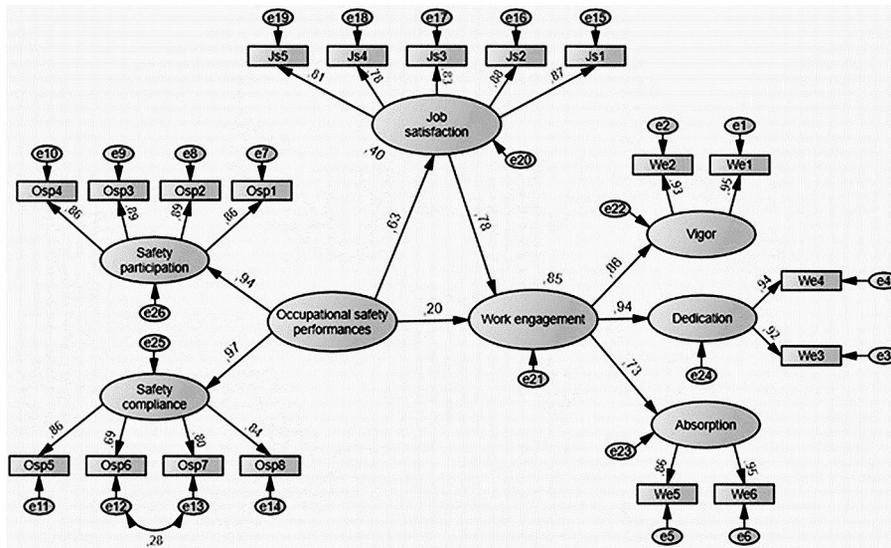
Structural equation model analysis tested the developed model. The findings indicated that 85% of the variance in work engagement could be explained by occupational safety performance and job satisfaction, signifying a substantial effect. This underscores the intertwined nature of these aspects in the emergency healthcare sector. It suggests that

fostering a robust safety culture enhances a sense of occupational security among employees and amplifies their job satisfaction and work engagement.

Such findings accentuate that ensuring occupational safety isn't merely about adhering to legal obligations; it fosters positive outcomes like heightened work engagement and elevated job satisfaction. When engaged and satisfied, emergency personnel are better positioned to deliver efficient care, ultimately benefiting the healthcare institutions they represent [82–87].

Several key takeaways from this study include:

- human capital is vital in high-stress sectors like emergency healthcare. Understanding the intricate dynamics of the workplace is essential to ensure effective patient care;
- establishing a pervasive safety culture is pivotal. Emergency personnel must feel secure in their environment to deliver optimal care;



**FIGURE 3.** The structural relationship among occupational safety performances, work engagement and job satisfaction,  $\chi^2 = 354.69$ ; SD = 143;  $p < 0.01$

Table 4. Standardized regression weights									
Effect				Outcome variable	$\beta$	SE	p value	95% CI	
								BootLLC	BootULCI
Total Effect									
Osp	→			We	0.69	0.05	< 0.001	0.59	0.77
Direct Effects									
Osp	→			We	0.20	0.07	< 0.001	0.06	0.32
Osp	→			Jp	0.63	0.05	< 0.001	0.52	0.72
Jp	→			We	0.78	0.06	< 0.001	0.66	0.90
Indirect Effect									
Osp	→	Js	→	We	0.49	0.06	< 0.001	0.39	0.61

Osp — occupational safety performances; We — work engagement; Jp — job satisfaction; CI — confidence interval

- engaging occupational safety experts, amplifying their influence, and heeding their advice could be pivotal in nurturing a holistic safety culture;
- employee representation in Occupational Health and Safety (OHS) boards and considering their inputs in decision-making processes can enhance job satisfaction and overall well-being.

However, this study, while invaluable, is not without its limitations. Future research might benefit from integrating control, moderator, or mediator variables for a more comprehensive understanding. The addition of individual attributes to the model can provide a deeper, more nuanced insight into the intricate dynamics of occupational safety, job satisfaction,

and work engagement among emergency healthcare professionals [88–92].

The healthcare environment, especially the emergency sector, is a highly stressful workplace where the risks of burnout, work-related stress, and incidents of workplace violence are high. The results of this study can be vitally important for occupational health physicians and occupational health services to address these challenges.

By understanding the relationship between occupational safety performance, work engagement, and job satisfaction, occupational health services can better devise strategies to bolster safety and well-being in emergency settings. Occupational

health physicians can design interventions specifically targeting emergency personnel. These might include stress-reduction workshops, training on coping mechanisms, or team-building exercises that address unique challenges faced by this group. By advocating for a robust safety culture, occupational health services can stress the importance of an environment, where healthcare professionals feel physically, mentally, and emotionally secure. This can lead to reduced incidents of workplace violence and increased job satisfaction. Establishing precise feedback mechanisms where emergency personnel can communicate their safety concerns or suggestions can ensure they feel heard and valued, thus increasing job satisfaction and engagement. Recognizing the emotional toll that the emergency environment can take, it might be beneficial to introduce well-being and resilience-building programs tailored to the specific needs of emergency healthcare workers. By understanding the factors that enhance job satisfaction and work engagement, measures can be taken to reduce potential stressors. This might involve adjusting workloads, ensuring adequate break times, or providing mental health support. With the knowledge that increased job satisfaction and work engagement can reduce the likelihood of workplace incidents, occupational health services can introduce training programs that equip emergency personnel with the tools to de-escalate potentially violent situations or cope with the aftermath.

## CONCLUSIONS

Summing up, by integrating the findings of this study, occupational health services and physicians can pave the way for a safer, more engaged, and more satisfied emergency healthcare workforce. This benefits the professionals themselves, the patients they serve, and the healthcare system at large.

### Article information and declarations

#### Author contributions

Conceptualization, D.Ç.T.; data collection, Z.F.O and A.Y.; laying out the methodology and statistical analysis, G.C.A. and Z.F.O. Writing-reviewing-editing, supervision and validation: M.Y., F.C., L.S. All authors acknowledge and declare that they have contributed equally to resources, data curation, original draft preparation, review and editing. All authors have

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Ethics committee approval of the study was obtained from Istanbul Aydin University/Turkey Ethics Committee.

#### Informed consent statement

Informed consent statement/voluntary participant consent texts were collected and archived from the study participants via Google form.

#### Data availability statement

Data will be provided by the corresponding author at the reasonable request of the corresponding author (F.C.). The corresponding author agrees and undertakes to share the raw data.

#### Conflict of interest

The authors declare no conflict of interest.

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