Article

The Impact of High-performance Work Systems in Public Hospitals: Employee Empowerment, Patient Safety, Occupational Safety and Union Activities

Journal of Health Management
28(1) 8–18, 2026

DOI: 10.1177/09720634251396613
journals.sagepub.com/home/jhm
Sage

Aysun Danayiyen[1] and Ş. Burak Bekaroğlu[2]

Abstract

The purpose of this study was to measure the effect of high-performance work systems (HPWS) on patient and employee safety, while examining the role of empowerment and union activities. This descriptive study was conducted in three training and research hospitals across three provinces in Türkiye. Data were collected via an online questionnaire using the HPWS, patient safety and employee safety surveys. Structural equation modelling (SEM) was applied for data analysis. Performance appraisal directly increases reporting frequency, while transformational leadership enhances managerial support for patient safety. Education, development and transformational leadership influence patient safety through structural empowerment, which also increases handoffs, transitions and reporting frequency. Psychological empowerment directly affects employee safety by improving compliance and participation in safety behaviours. Compensation impacts employee safety directly and patient safety indirectly through increased safety compliance. This study contributes to the understanding of how HPWS affects both patient and employee safety and emphasises the role of empowerment and union activities in a high-demand work environment.

Keywords

High-performance work systems, patient safety, employee safety, union activities

Introduction

High-performance work systems (HPWS) represent a strategic approach in human resource management (HRM) aimed at enhancing organisational effectiveness through practices that align with corporate goals, foster employee engagement and improve performance (Huselid, 1995). HPWS encompasses HRM strategies such as performance appraisal, training, compensation and leadership styles, promoting employee involvement, motivation and commitment (Messersmith & Guthrie, 2010). By fostering trust and cooperation between employees and management, HPWS creates a synergetic effect that enhances both individual and organisational performance (Sung & Ashton, 2005). Essentially, HPWS is a management approach based on employee participation, facilitating cooperation, partnership and harmony between employees and employers (Lee & Yang, 2011). The high level of trust and collaboration within HPWS encourages employees to work with a sense of responsibility, even without direct supervision (Barnard & Rodgers, 2000).

Empirical evidence shows that HPWS enhances organisational performance by influencing employee behaviours like turnover and productivity, as well as attitudes such as motivation and commitment (Wahap et al., 2021). Social exchange and signalling theories suggest that HR practices signal organisational investment, fostering reciprocal positive behaviours (Wahap et al., 2021). While HPWS research has focused on the private sectors like manufacturing and finance (Powell et al., 2014), its relevance in healthcare has grown due to the sector's labour-intensive nature. HPWS improves patient safety, employee satisfaction and efficiency (Wang et al., 2019).

Healthcare transformation and increasing complexities have driven further HPWS exploration (Aydın, 2019). Key components include employee empowerment and unionisation. Kanter's Structural Empowerment Theory highlights HPWS's role in fostering growth, competence and control (Bartram et al., 2014; Kanter, 1987; Kilroy et al., 2017). Unionisation strengthens employee rights and workplace collaboration, reinforcing HPWS's positive impact on patient and employee safety, particularly in Türkiye, where unionisation has risen since the 2000s.

[1]Faculty of Health Sciences, Istanbul Sabahattin Zaim University, Halkalı, Istanbul, Türkiye
[2]Faculty of Health Sciences, Marmara University, Maltepe, Istanbul, Türkiye
Corresponding author:
Ş. Burak Bekaroğlu, Faculty of Health Sciences, Marmara University, Maltepe, Istanbul 34854, Türkiye.
E-mail: bbekaroglu@marmara.edu.tr

This study aims to explore the effects of HPWS on patient safety and employee safety in healthcare organisations. By analysing the relationship between HPWS components and safety outcomes, the research seeks to provide actionable insights for healthcare leaders and policymakers, contributing to the advancement of HRM practices in healthcare.

Literature Review

Healthcare, a labour-intensive sector, relies on effective HRM to align workforce capabilities with organisational goals. Garman et al. (2011) illustrate how HPWS subsystems impact patient, hospital and employee outcomes. While hospitals gain in quality, safety and productivity, employees benefit from higher job satisfaction, commitment, well-being and lower turnover, all influencing patient outcomes. Empirical studies confirm that HPWS enhances engagement (Young et al., 2010), satisfaction (Harmon et al., 2003) and workplace behaviours (Boselie, 2010) while improving care quality (Laschinger et al., 2001), safety (Etchegaray & Thomas, 2011; Harmon et al., 2003) and patient satisfaction (Scotti et al., 2007). By boosting satisfaction and reducing burnout, HPWS enhances service quality and cost efficiency.

However, its impact on employee safety remains underexplored. McAlearney et al. (2016) suggest HPWS can improve patient safety through training, development and performance appraisal. Integrating safety compliance, empowerment, teamwork, leadership and compensation, HPWS fosters a sustainable, high-quality healthcare system.

Patient Safety and HPWS

The World Health Organization (WHO, 2020) defines patient safety as the protection of patients from healthcare-related errors and undesirable situations, recognising it as a critical global public health issue. WHO data indicate that an alarming number of patients experience medical malpractice or even lose their lives due to inadequate and poor-quality healthcare. Medical malpractice is a multidimensional issue involving ethical, legal, medical, educational and managerial considerations (Polat & Pakiş, 2011). Various human, environmental and technical factors contribute to medical errors, often in an intertwined manner.

Studies highlight that most medical errors stem not from technical inadequacies but from team interactions and cultural dynamics in healthcare organisations. Nembhard and Edmondson (2006) found that 70%–80% of medical errors are linked to communication and teamwork failures, rather than technical deficiencies. Similarly, Khatri et al. (2006) identified that most errors arise from non-technical cultural factors, yet many healthcare organisations fail to acknowledge their role in these errors (Ramanujam & Rousseau, 2006). The blame culture within institutions can also discourage error reporting, limiting opportunities for improvement. Despite the emphasis on patient safety, most interventions occur in isolated clinical settings rather than addressing broader organisational factors such as leadership, communication and learning culture (Edworthy et al., 2005). Patient safety literature presents diverse recommendations, ranging from hand hygiene protocols and vocational training reforms to health system restructuring and quality improvement initiatives (King et al., 2008). However, regulatory efforts and safety culture initiatives remain superficial, failing to create a deep, sustainable change.

HPWS, which emphasises employee participation, empowerment and skill development, offers a systematic approach to strengthening patient safety culture. Research indicates a positive relationship between HPWS and institutional performance, reliability and safety outcomes (Zacharatos et al., 2005). Integrative HPWS applications can reduce medication errors and mortality rates by enhancing information quality and dissemination (West et al., 2006). HPWS encourages employees to expand their competencies, enabling them to make timely and accurate decisions, which minimises medical errors. Moreover, studies suggest that improvements in patient safety are linked to enhanced hospital financial performance, as better safety practices contribute to revenue growth, higher profit margins and stronger capital reserves (Beauvais et al., 2019). However, despite its potential, HPWS remains an underexplored strategy in patient safety research. Based on the existing literature, the following hypothesis is proposed:

H_1: HPWS increases patient safety.

Occupational Safety and HPWS

Beyond patient health, employee health and safety play a crucial role in ensuring high-quality healthcare services. Hospital employees are exposed to various occupational risks that can impact their health, productivity and service quality (Hofmann & Mark, 2006). Ensuring employee safety is considered the first step in achieving patient safety, as it reduces infections, complications, costs and workplace stress (Weaver et al., 2013).

A poor working environment and a lack of occupational health measures negatively affect healthcare quality. Studies have shown that employee turnover, overtime and compensation issues correlate with longer patient stays and decreased service quality (Stone et al., 2007). To prevent these issues, it is essential to enhance workplace safety practices and provide continuous feedback through performance monitoring. HPWS contributes to employee safety by promoting a supportive work environment, structured performance appraisal and empowerment (Zacharatos et al., 2005). However, its impact on occupational safety in healthcare remains an underexplored area requiring further research.

HPWS provides opportunities and power to employees to achieve organisational goals and enables them to become

partners in these goals. In the literature, studies primarily focus on the effect of HPWS on organisational performance with variables such as productivity and profit. In recent years, although the effects on employee well-being have been studied, the aspect of occupational health and safety seems to be incomplete. Accordingly, the foreseeable possible impact of HPWS on occupational safety can be expressed as follows:

H_2: HPWS increases occupational safety.

The Effects of Empowerment and Unionisation

HPWS provides employees with opportunities and authority to align with organisational goals, empowering them as active participants in decision-making (Lee & Yang, 2011). Empowerment is defined as encouraging employees to focus on job demands while fostering initiative and creativity (Laschinger et al., 2010). Empowerment involves the ability of an individual to benefit from available resources and make independent decisions to achieve goals. The creation of two fundamental empowerment structures (opportunity structures and power structures) has garnered significant attention in organisational research (Kanter, 1987). The key to organisational success is these structures, which provide individuals with the opportunity to thrive.

The opportunity structure supports career growth and skill development, while the power structure grants access to resources, information and support (Laschinger et al., 2010). Kanter links these structures to formal and informal power systems. Research, especially in nursing, confirms that empowered employees provide higher-quality care (Laschinger et al., 2010), with managerial empowerment directly influencing care quality (Scotti et al., 2007). These findings underscore the importance of structural empowerment in healthcare.

HPWS enhances patient and employee safety by fostering structural empowerment within healthcare organisations. By increasing access to resources, decision-making authority and professional development opportunities, HPWS creates an environment where healthcare professionals can deliver safer and higher-quality services. Accordingly, the possible effects of structural empowerment on patient safety and employee safety within the framework of HPWS can be expressed as follows:

H_{3a}: Structural empowerment increases patient safety within the framework of HPWS.
H_{3b}: Structural empowerment increases occupational safety within the context of HPWS.

Psychological empowerment serves as a mechanism that encourages employees to reflect on their individual characteristics and job requirements, while enhancing their sense of meaning and competence in their roles (Laschinger et al., 2004).

Research highlights that HPWS components significantly influence psychological empowerment, making it a critical factor in enhancing the quality of patient care (Kilroy et al., 2017). Psychological empowerment enables healthcare professionals to feel more engaged, motivated and capable of delivering high-quality care. Harmon et al. (2003) found that clinicians' psychological empowerment positively impacts patient care quality, emphasising its role in improving healthcare outcomes.

Accordingly, the potential effects of psychological empowerment on patient safety and employee safety within HPWS can be stated as follows:

H_{4a}: Psychological empowerment increases patient safety within the framework of HPWS.
H_{4b}: Psychological empowerment increases occupational safety within the framework of HPWS.

Trade unions significantly impact HRM and employee empowerment. In Türkiye, healthcare unionisation reached 68% by 2018, with Sağlık-Sen holding 45.6%. Since 2003, unions have shaped personnel rights and workforce planning. Given their influence, union membership is included as a study variable. Research links unionisation to positive HPWS outcomes (Harley et al., 2007), though more studies are needed. This study explores HPWS's impact on union activities, empowerment and safety performance. Accordingly, the possible effects of union activities on patient safety and employee safety within the framework of HPWS can be expressed as follows:

H_{5a}: Unionisation increases patient safety within the framework of HPWS.
H_{5b}: Unionisation increases occupational safety within the framework of HPWS.

Methods

The study population consisted of employees of three training and research hospitals operating in Türkiye, which are in the top 10 in terms of the number of patients, beds and personnel. The descriptive study was performed with the participation of the clinical and administrative staff of the hospitals. Data were collected between September 2019 and December 2019 via an online survey method. Out of a total of 4,307 employees who were approached through the online survey, 324 responded (return rate = 7.52%). Invalid and incomplete forms were excluded, and 309 forms were evaluated.

The questionnaire consists of six parts. While the first part includes questions related to the demographic characteristics of the participants, the second part includes empowerment questions, consisting of structural empowerment and psychological empowerment sub-dimensions. The validity and reliability studies of structural empowerment questions (Laschinger et al., 2001) and psychological empowerment questions (Spreitzer, 1995) in Turkish were conducted by

Surgevil et al. (2013). The Cronbach's alpha (CA) values of the dimensions were 0.91 and 0.93, respectively. The CA coefficient for the entire scale was 0.94.

The third part consists of a 29-item HPWS scale developed by the researchers. The CA reliability coefficient of the six sub-dimensions of the scale ranged from 0.87 to 0.95. The CA coefficient of the whole scale is 0.96. The six sub-dimensions were named as follows: performance appraisals were performed in terms of transformational leadership, compensation, employee safety, training and development, participation in decisions and teamwork.

The fourth section includes patient safety items. This structure was measured using items from the Turkish adaptation of the Patient Safety Culture Hospital Survey, conducted by Bodur and Filiz (2010). The frequency of reported incidents, information transfer in procedures and interventions, management support for patient safety, and teamwork were selected as sub-dimensions of the scale (Mardon et al., 2010). CA reliability coefficients for these sub-dimensions were found as 0.93, 0.89 and 0.85, respectively. CA coefficient for the whole scale is 0.82.

The next section consists of employee safety items. Employee safety was measured using the scale developed by Neal and Griffin (2004) and was adapted into Turkish by Dursun (2011). The scale has two sub-dimensions: safety compliance (three items) and safety participation (three items). The CA reliability coefficients for these sub-dimensions are 0.92 and 0.90, respectively. The CA coefficient for the entire scale was 0.93.

The last part of the questionnaire is about unionisation. The unionisation scale consists of items that question how the management considers the union, the effect of unionisation on wages, addressing employee problems and complaints, and communication with employees. The CA reliability coefficient of this construct is 0.91.

All variables were measured using five-point Likert scales (1 = strongly disagree and 5 = strongly agree). The ethics committee approval was obtained from Marmara University Health Sciences Institute Ethics Committee (No: 14.01.2019-07).

In this study, the International Business Machines-Statistical Package for the Social Sciences (IBM-SPSS) v.24.0 package programme was used for descriptive statistics and correlation analysis. IBM-SPSS Analysis of Moment Structures (AMOS) v.24.0 was used to measure the direct and indirect effects of HPWS dimensions on patient safety and occupational safety via unionisation and empowerment by using structural equation modelling (SEM).

The logic model is given in Figure 1.

Results

The main sample consists of a total of 309 participants (Table 1).

There is a two-stage approach in SEM, which includes scale validation of the measurement model and structural path analysis. In the scale validity evaluation, convergent validity was performed with goodness-of-fit statistics, average variance extracted (AVE) and composite reliability (CR), to determine the psychometric properties of the measurement model of the analysed constructs. A brief description of these, along with their listing in Table 2, is provided below.

In the measurement model validity and reliability analysis, the CA, which assumes that factor load values and error variances are equal, was used to measure internal consistency. For concordance validity, the combined CR, which assumes that factor loading values and error variances are different, and the AVE values were calculated. The CA and CR values for all variables are >0.80 and are above the threshold value of 0.70 for construct reliability. The high concordance validity indicates that the observed variables are highly correlated with each other within the latent variable, thereby representing the latent variable well (Hair et al., 2014). High standard factor loads ($p < .001$) are accepted as an indicator of concordance validity, as it indicates that the factors converge at a common point (latent variable) (Hair et al., 2014).

After completing the validity and reliability analyses, the SEM construction began. Path analysis was employed to

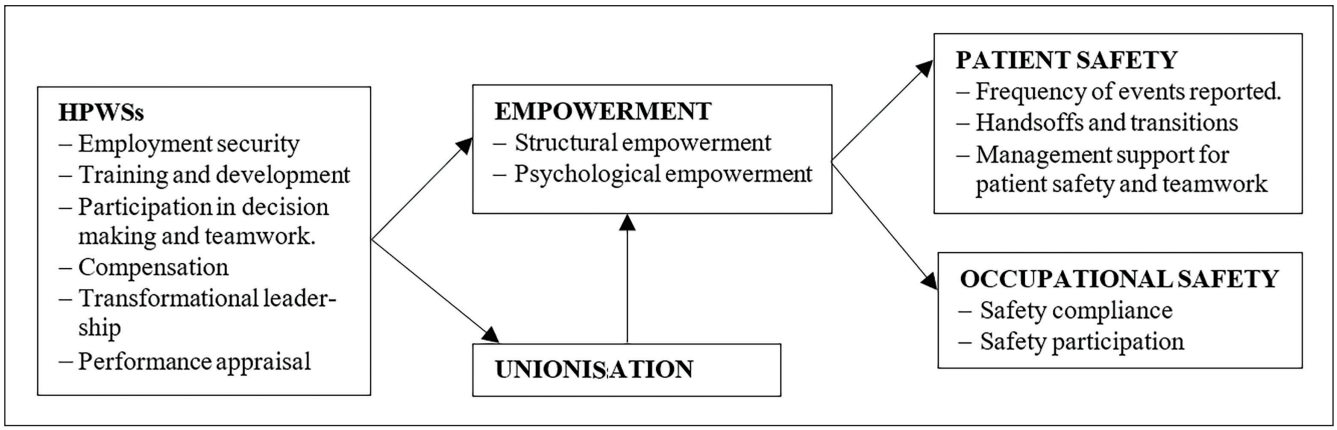

Figure 1. Conceptual Framework.

Table 1. Sample Statistics.

Variables	*N*	%	M	SD	Min	Max
Gender						
Female	223	72.2				
Male	86	27.8				
Age (year)			34.0	8.1	19.0	65.0
<25	30	9.7				
25–34	138	44.6				
35–44	113	36.6				
≥45	28	9.06				
Education						
High school	64	20.7				
Associate degree	56	18.1				
Undergraduate	134	43.3				
Graduate	55	17.8				
Experience (year)			11.3	8.5	0.1	42.0
<5	84	27.2				
5–9	71	22.9				
10–14	57	18.4				
≥15	97	31.4				
Tenure (year)			7.1	6.2	0.1	36.0
<2	59	19.1				
2–4	76	24.6				
5–9	88	28.5				
≥10	86	27.8				

Notes: M: Mean; SD: Standard deviation. *N* = 309.

Table 2. Convergent Validity.

Constructs	CA	AVE	CR
Performance appraisal	0.940	0.727	0.941
Transformational leadership	0.959	0.816	0.957
Compensation	0.871	0.510	0.858
Employment security	0.933	0.762	0.927
Training and development	0.922	0.681	0.914
Participation in decision-making and teamwork	0.904	0.730	0.890
Unionisation	0.912	0.604	0.901
Structural empowerment	0.913	0.586	0.905
Psychological empowerment	0.929	0.521	0.912
Safety compliance	0.928	0.817	0.931
Safety participation	0.908	0.807	0.926
Handsoffs and transitions	0.897	0.556	0.896
Frequency of events reported	0.930	0.817	0.930
Management support for patient safety and teamwork	0.851	0.740	0.851

Note: AVE: Average variance extracted; CA: Cronbach's alpha; CR: Composite reliability.

estimate structural relationships and to determine the direct and indirect effects of the independent variables on the dependent variables (Byrne, 2010; Karagöz, 2019). The analysis utilised the ML Bootstrap method with 100 samples at a 95% confidence level (Byrne, 2010). Non-significant paths were identified and removed based on goodness-of-fit values, regression weights and significance levels. In the second stage, modification indices were reviewed, and covariance relationships were established between error terms within the same factor to improve model fit while maintaining institutional consistency. Each modification was applied individually, and the analysis was repeated. The statistical validity of the SEM was evaluated using significance tests, model fit indices and comparative measures, as summarised in Table 3.

χ^2/df of <3 indicates that the overall fit of the model is acceptable. Although there is a consensus on the use of the χ^2/df value, different suggestions have been made by different researchers about which of the other fit indices should be reported. Many researchers, including Garver and Mentzer (1999), recommend giving root mean square error of approximation (RMSEA), comparative fit index (CFI) and Tucker–Lewis index (TLI).

The direct effect shows how much a one-unit increase in an independent latent variable will cause an increase in the latent variable that is directly dependent on it (Figure 2). It does not include indirect and intermediary effects. Direct effects are beyond indirect and intermediary effects. The total effect shows the effect of indirect and direct effects on the latent variable together.

Table 4 presents the standardised coefficients for the direct, indirect and total effects of various independent variables on different dependent variables in the SEM.

These coefficients represent the strength and direction of the relationships between the independent and dependent variables. The direct effect indicates the immediate impact, while the total effect includes both direct and indirect effects through other variables.

HPWS components—performance appraisal (β = 0.203, p < .01), training and development (β = 0.111, p < .01), employment security (β = 0.040, p < .05), compensation (β = 0.042, p < .05) and transformational leadership (β = 0.130, p < .01)—positively impact event reporting, which is a key element of patient safety. Compensation (β = 0.033, p < .01) also improves handoffs and transitions (β = 0.154, p < .05). Transformational leadership (β = 0.523, p < .05) significantly enhances managerial support for patient safety and teamwork. These findings partially support H_1, indicating HPWS improves patient safety.

Compensation significantly affects safety compliance (β = 0.143, p < .01), with an indirect effect (β = 0.014, p < .01). Employment security (β = 0.120, p < .05) and transformational leadership (β = 0.100, p < .05) also enhance safety compliance. These factors further support safety participation, reinforcing occupational safety. The results partially support H_2, confirming that HPWS improves occupational safety.

Training and development (β = 0.341, p < .01) and transformational leadership (β = 0.401, p < .05) enhance structural empowerment, which in turn positively influences event reporting (β = 0.325, p < .05) and handoffs and transitions (β = 0.233, p < .05), supporting H_{3a} and confirming their role in improving patient safety. Additionally, structural empowerment strengthens safety compliance (β = 0.250, p < .05) and safety participation (β = 0.456, p < .05), supporting H_{3b} and reinforcing occupational safety.

Employment security (β = 0.395, p < .05) and participation in decision-making and teamwork (β = 0.131, p < .05) positively impact psychological empowerment. Psychological empowerment improves event reporting (β = 0.049, p < .05) and handoffs and transitions (β = 0.154, p < .05), partially supporting H_{4a} on patient safety. It also significantly enhances safety compliance (β = 0.262, p < .05) and safety participation (β = 0.125, p < .05), supporting H_{4b} and confirming its role in occupational safety.

Transformational leadership (β = 0.351, p < .05), employment security (β = 0.260, p < .05) and compensation (β = 0.225, p < .01) positively impact unionisation. Unionisation enhances management support for patient safety (β = 0.229, p < .05), handoffs and transitions (β = 0.058, p < .05), and event reporting (β = 0.081, p < .05), partially supporting H_{5a}. It also strengthens safety compliance (β = 0.062, p < .05) and safety participation (β = 0.113, p < .05), supporting H_{5b}.

Performance appraisal, structural empowerment and safety compliance explain 28.6% of reporting frequency variance (R^2 = 0.286, p < .05).

Discussion

Given the crucial role of the human element in healthcare service delivery, this study evaluates HRM practices as a key determinant of quality and safe healthcare services. One of the most significant findings is that performance appraisal, a

Table 3. Goodness-of-fit Statistics.

	χ^2	df	χ^2/*df*	CFI	TLI	RMSEA
Model			(≤5)	(≥0.95)	(≥0.90)	(≤0.08)
Measurement model	3,517.7	2,211	1.59	0.94	0.93	0.04
SEM	3,483.5	2,257	1.54	0.94	0.94	0.04

Notes: Reference values are in parentheses. CFI: Comparative fit index; RMSEA: Root mean square error of approximation; SEM: Structural equation modelling; TLI: Tucker–Lewis index.

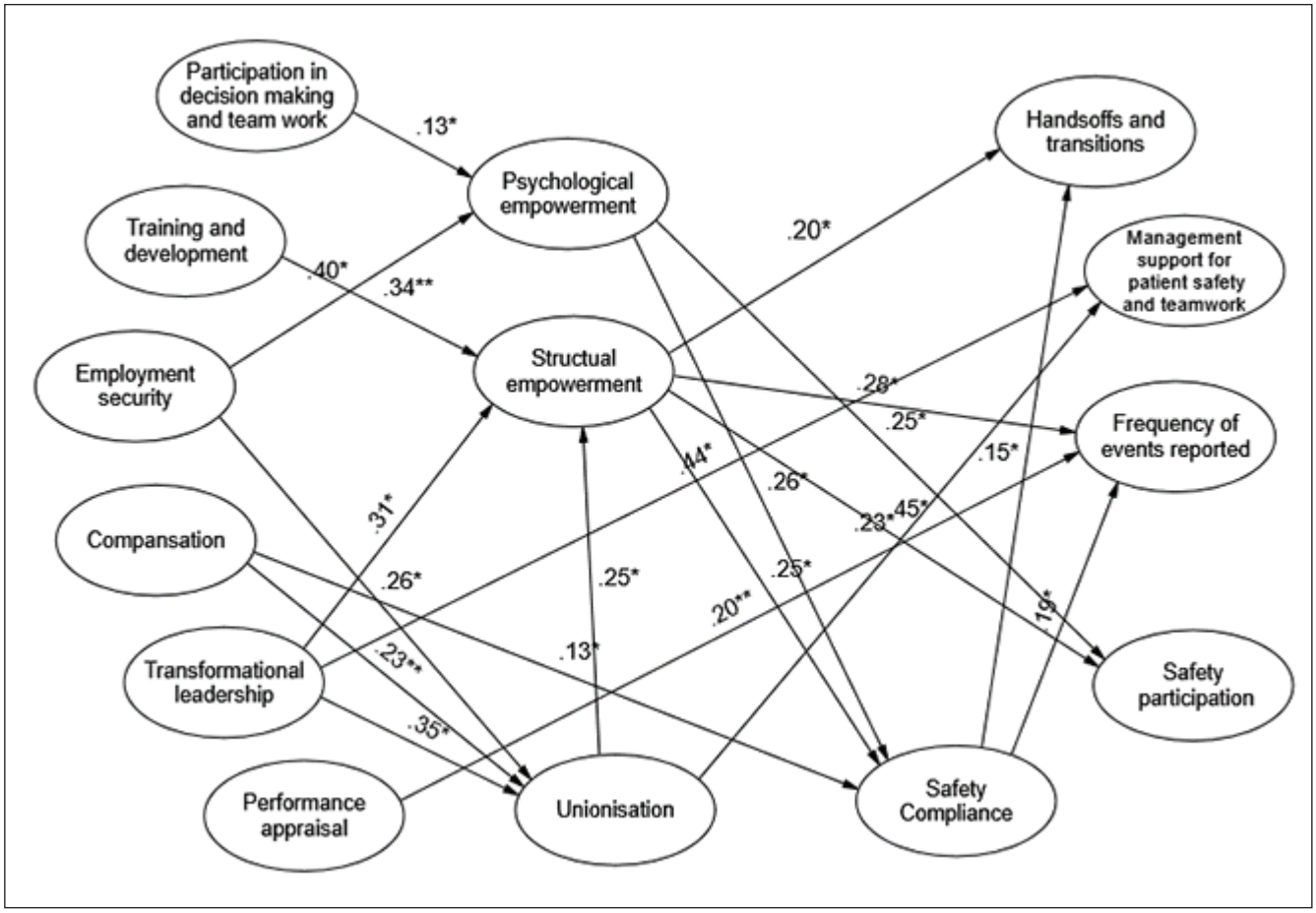

Figure 2. Result of Path Analysis.

sub-dimension of HPWS, has a direct positive impact on the frequency of patient safety reporting. Additionally, transformational leadership behaviours positively influence managerial support for patient safety, an essential component of a strong patient safety culture.

To enhance patient safety, performance appraisal should go beyond scoring, incorporating innovation, process improvements and error-free performance. The primary goal is to provide constructive feedback (McAlearney et al., 2016), which fosters a sense of value and increases safety incident reporting. However, research in Türkiye shows low reporting rates (Çakmak et al., 2018). The General Reporting System (GRS) was introduced for anonymous reporting, yet Wachter (2010) warns that reporting without learning can lead to data overload. Rather than anonymity alone, employees seek feedback and visible action (McAlearney et al., 2016). Integrating patient safety into performance appraisals, while emphasising quality over quantity, can strengthen safety culture and drive continuous improvement.

This study finds that compensation in HPWS enhances employee safety compliance by reinforcing adherence to safety protocols. Fair wages, benefits and income security, especially in institutions distributing working capital shares, play a key role. Chelius (1982) links higher wages to lower injury rates, but increased additional payments (e.g., overtime, piecework) correlate with higher injury risks, underscoring the need for balanced income security policies.

Transformational leadership was found to have a direct positive effect on patient safety and managerial support, as well as an indirect positive effect on structural empowerment. This aligns with Laschinger et al. (2001), who emphasise that leader–employee relationships influence perceptions of structural and psychological empowerment. Additionally, structural empowerment mediates the relationship between transformational leadership and patient safety reporting frequency, a finding consistent with Chuang et al. (2012). Research indicates that leaders who address employee concerns enhance the reporting system's success (McAlearney et al., 2016). Managerial empowerment also influences nurses' care quality (Scotti et al., 2007). While patient safety literature often focuses on nurses, leadership is crucial for safety culture, quality and accreditation. Transformational

Table 4. Standardised Direct, Indirect and Total Effects.

Dependent Variable		Independent Variable	Standardised Coefficients					
			Direct Effects		Indirect Effects		Total Effects	
Frequency of events reported	←	Performance appraisal	.203	**			.203	**
	←	Safety compliance	.186	*			.186	*
	←	Structural empowerment	.280	*	.046	*	.325	*
	←	Participation in decision-making and teamwork			.006	*	.006	*
	←	Training and development			.111	**	.111	**
	←	Employment security			.040	*	.040	*
	←	Compensation			.042	*	.042	*
	←	Transformational leadership			.130	*	.130	*
	←	Unionisation			.081	*	.081	*
	←	Psychological empowerment			.049	*	.049	*
Handsoffs and transitions	←	Safety compliance	.154	*			.154	*
	←	Structural empowerment	.195	*	.038	*	.233	*
	←	Psychological empowerment			.040	*	.040	*
	←	Employment security					.031	*
	←	Transformational leadership			.093	*	.093	*
	←	Participation in decision-making and teamwork			.005	*	.005	*
	←	Training and development			.080	**	.080	**
	←	Compensation			.033	**	.033	**
	←	Unionisation			.058	*	.058	*
Management support for patient safety and teamwork	←	Transformational leadership	.443	*	.080	*	.523	*
	←	Unionisation	.229	*			.229	*
	←	Compensation			.051	*	.051	*
	←	Employment security			.059	*	.059	*
Structural empowerment	←	Training and development	.341	**			.341	**
	←	Transformational leadership	.314	*	.087	*	.401	*
	←	Unionisation	.250	*			.248	*
	←	Employment security					.064	*
	←	Compensation			.056	*	.056	*
Psychological empowerment	←	Employment security	.395	*			.395	*
	←	Participation in decision-making and teamwork	.131	*			.131	*
Safety compliance	←	Psychological empowerment	.262	*			.262	*
	←	Structural empowerment	.250	*			.250	*
	←	Compensation	.129	*	.014	**	.143	*
	←	Training and development			.085	**	.085	**
	←	Participation in decision-making and teamwork			.034	*	.034	*
	←	Employment security			.120	*	.120	*
	←	Transformational leadership			.100	*	.100	*
	←	Unionisation			.062	*	.062	*

(Table 4 continued)

(Table 4 continued)

Dependent Variable		Independent Variable	Standardised Coefficients					
			Direct Effects		Indirect Effects		Total Effects	
Safety participation	←	Structural empowerment	.456	*			.456	*
	←	Psychological empowerment	.125	*			.125	*
	←	Participation in decision-making and teamwork			.016	*	.016	*
	←	Training and development			.156	**	.156	**
	←	Employment security			.079	*	.079	*
	←	Compensation			.025	*	.025	*
	←	Transformational leadership			.183	*	.183	*
	←	Unionisation			.113	*	.113	*
Unionisation	←	Transformational leadership	.351	*			.351	*
	←	Employment security	.260	*			.260	*
	←	Compensation	.225	**			.225	**

Note: $N = 309$; *$p < .05$; **$p < .01$ (two-tailed tests).

leadership fosters innovation, recognises employee needs, and embraces diversity, aligning with Mintzberg's (2013) leadership framework on communication, problem-solving and resource allocation.

This study confirms that structural empowerment increases reporting, while HPWS elements like education and leadership indirectly enhance patient safety. Aligning with prior research, HR practices empower employees, improving organisational performance (Kilroy et al., 2017; Laschinger et al., 2001; Sienknecht & Van Aken, 1999), highlighting HPWS's role in fostering safe, high-quality healthcare.

Education and development increase reporting and information transfer by providing employees with the necessary knowledge, resources and opportunities. West et al. (2011) argue that when training is tailored to individual career development needs, it fosters a high-performance work environment. Structural empowerment significantly impacts safety compliance and participation, which are key employee safety dimensions, while also mediating the influence of education, development and transformational leadership within the HPWS.

Research by Bartram et al. (2014) supports the role of psychological empowerment as a mediator between HPWS and perceived quality of patient care. Psychological empowerment directly influences safety compliance and safety participation, strengthening employee safety behaviours. Additionally, HPWS components such as participation in decision-making, teamwork and employee safety positively impact safety outcomes through psychological empowerment.

Safety compliance refers to adherence to workplace safety protocols that minimise accident risks, including avoiding hazardous practices, wearing protective gear and following safety regulations (Dursun, 2011). Studies confirm a direct positive link between safety compliance and patient safety reporting frequency, as well as information sharing during procedures and interventions. Brevidelli and Cianciarullo (2009) in Brazil demonstrated that patient safety improves when employees receive feedback on safety practices and managerial support.

These findings reinforce that education and development, structural empowerment and psychological empowerment are integral to fostering a high-performance safety culture in healthcare. By integrating these components within HPWS, healthcare institutions can enhance patient safety, improve reporting behaviour, and strengthen employee safety compliance.

This study highlights the impact of HPWS sub-dimensions—compensation, transformational leadership and employee safety—on union activities. Research suggests that unions enhance HPWS implementation (Harley et al., 2007), and this study confirms that transformational leadership directly increases union engagement. Union activities also strengthen managerial support for patient safety, a key cultural factor.

Conclusions

This study highlights the significant role of HPWS in fostering employee empowerment, patient safety, occupational safety and union involvement in public hospitals. Structural empowerment, which enables employees to access resources and support, enhances handoffs, transitions and reporting frequency, contributing to patient safety. Psychological empowerment, on the other hand, strengthens safety compliance and participation, and positively impacting employee safety. Additionally, the compensation dimension of HPWS indirectly influences both employee and patient safety by increasing safety compliance.

An essential finding is that performance appraisal significantly enhances direct reporting frequency, while transformational leadership strengthens managerial support for patient safety. Performance appraisal systems, when designed to

include patient safety-related feedback, can support behaviour modification and continuous improvement. Instead of collecting excessive data through reporting systems like GRS, a targeted approach—as implemented in US hospitals since 2003—could facilitate comparative analysis, dissemination of best practices and proactive incident management (Wachter, 2010). According to WHO (2020), effective incident reporting strategies could lead to 3.2 million fewer hospitalisation days, 260,000 fewer permanent disabilities, and 95,000 fewer deaths annually in the European Union (EU).

Despite its contributions, this study has limitations. While targeting employees in three hospitals, participation was constrained by voluntary response bias and survey distribution challenges. Low online response rates (Geldsetzer, 2020) and questionnaire length further affected generalisability. Patient safety was assessed through employee perceptions due to the unavailability of direct hospital safety data, though perception-based assessments can help predict and prevent errors.

Future research could compare HPWS in private and public hospitals and examine its impact on financial performance to explore the cost-quality relationship. Additionally, integrating medical error rates into hospital performance metrics could assess errors as a cost of poor quality.

Authors Contribution

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Aysun Danayiyen and Burak Bekaroğlu. The first draft of the manuscript was written by Aysun Danayiyen, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest regarding the research, authorship and/or publication of this article.

Funding

The authors received no financial support for the research, authorship and/or publication of this article.

References

Aydın, S. (2019). Yüksek Performanslı Sağlık Sistemleri. In H. Sur, T. Palteki, & G. Yazıcı (Eds.), *Hasta Güvenliği* (pp. 499–508). Palme Yayınevi.

Barnard, M. E., & Rodgers, R. A. (2000). How are internally oriented HRM policies related to high-performance work practices? Evidence from Singapore. *International Journal of Human Resource Management*, *11*(6), 1017–1046.

Bartram, T., Karimi, L., Leggat, S. G., & Stanton, P. (2014). Social identification: Linking high performance work systems, psychological empowerment and patient care. *International Journal of Human Resource Management*, *25*(17), 2401–2419.

Beauvais, B., Richter, J., Forest, K., Sickels, G., Hook, T., Kiley, S., & Horal, T. (2019). Does patient safety pay? Evaluating the association between surgical care improvement project performance and hospital profitability. *Journal of Healthcare Management*, *64*(3), 142–154.

Bodur, S., & Filiz, E. (2010). Validity, and reliability of Turkish version of "Hospital Survey on Patient Safety Culture" and perception of patient safety in public hospitals in Turkey. *BMC Health Services Research*, *10*(28), 2–9.

Boselie, P. (2010). High performance work practices in the health care sector: A Dutch case study. *International Journal of Manpower*, *4*, 42–58.

Brevidelli, M. M., & Cianciarullo, T. I. (2009). Psychosocial and organizational factors relating to adherence to standard precautions. *Revista de saude publica*, *43*, 907–916.

Byrne, B. M. (2010). *Structural equation modelling with AMOS: Basic concepts, applications, and programming* (2nd ed.). Routledge.

Çakmak, C., Konca, M., & Teleş, M. (2018). Türkiye ulusal güvenlik raporlama sistemi (GRS) üzerinden tıbbi hataların değerlendirilmesi. *Hacettepe Sağlık İdaresi Dergisi*, *21*(3), 423–448.

Chelius, J. R. (1982). The influence of workers' compensation on safety incentives. *ILR Review*, *35*(2), 235–242.

Chuang, E., Dill, J., Morgan, J. C., & Konrad, T. R. (2012). A configurational approach to the relationship between high-performance work practices and frontline health care worker outcomes. *Health Services Research*, *47*(4), 1460–1481.

Dursun, S. (2011). *Güvenlik Kültürünün Güvenlik Performansı Üzerine Etkisine Yönelik Bir Uygulama*. Uludağ Üniversitesi Sosyal Bilimler Enstitüsü (Danışman: Prof. Dr. Serpil Aytaç).

Edworthy, J., Hignett, S., Hellier, E., & Stubbs, D. (2005). Patient safety. *Case Manager*, *16*(3), 74–79.

Etchegaray, J. M., & Thomas, E. J. (2011). Measures of high-performance work systems in health care settings: Propositions for improvement. *Health Care Management Review*, *36*(1), 38–46.

Garman, A. N., McAlearney, A. S., Harrison, M. I., Song, P. H., & McHugh, M. (2011). High-performance work systems in health care management, part 1: Development of an evidence-informed model. *Health Care Management Review*, *36*(3), 201–213.

Garver, M., & Mentzer, J. T. (1999). Logistics research methods: Employing structural equation modelling to test for construct validity. *Journal of Business Logistics*, *20*(1), 33–57.

Geldsetzer, P. (2020). Use of rapid online surveys to assess people's perceptions during infectious disease outbreaks: A cross-sectional survey on COVID-19. *Journal of Medical Internet Research*, *22*, e18790.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modelling*. Sage Publications.

Harley, B., Allen, B. C., & Sargent, L. D. (2007). High performance work systems and employee experience of work in the service sector: The case of aged care. *British Journal of Industrial Relations*, *45*(3), 607–633.

Harmon, J., Scotti, D. J., Behson, S., Farias, G., Petzel, R., Neuman, J. H., & Keashly, L. (2003). Effects of high-involvement work systems on employee satisfaction and service costs in veterans' healthcare. *Journal of Healthcare Management*, *48*(6), 393–406.

Hofmann, D. A., & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other nurse and patient outcomes. *Personnel Psychology*, *59*(4), 847–869.

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, *38*(3), 635–672.

Kanter, R. M. (1987). Men and women of the corporation revisited. *Management Review*, *76*(3), 14–39.

Karagöz, Y. (2019). *SPSS-AMOS-META Uygulamalı İstatistiksel Analiz*. Atlas Akademik Basın Yayım Dağ. Ltd.Şti.

Khatri, N., Baveja, A., Boren, S. A., & Mammo, A. (2006). Medical errors and quality of care: From control to commitment. *California Management*, *48*(3), 115–142.

Kilroy, S., Flood, P. C., Bosak, J., & Chênevert, D. (2017). Perceptions of high-involvement work practices, person-organization fit, and burnout: A time-lagged study of health care employees. *Human Resource Management*, *56*(5), 821–835.

King, H. B., Battles, J., Baker, D. P., Alonso, A., Salas, E., Webster, J., Toomey, L., Salisbury, M., Henriksen, K., Battles, J. B., Keyes, M. A., & Grady, M. L. (2008). Team STEPPS: Team strategies and tools to enhance performance and patient safety advances. In *Advances in patient safety: New directions and alternative approaches (Vol. 3: Performance and tools)*. National Institutes of Health.

Laschinger, H. K. S., Finegan, J., Shamian, J., & Wilk, P. (2001). Impact of structural and psychological empowerment on job strain in nursing work settings: Expanding Kanter's model. *JONA: The Journal of Nursing Administration*, *31*(5), 260–272.

Laschinger, H. K. S., Finegan, J., Shamian, J., & Wilk, P. (2004). A longitudinal analysis of the impact of workplace empowerment on work satisfaction. *Journal of Organizational Behavior*, *5*(4), 527–545.

Laschinger, H. K. S., Gilbert, S., Smith, L. M., & Leslie, K. (2010). Towards a comprehensive theory of nurse/patient empowerment: Applying Kanter's empowerment theory to patient care. *Journal of Nursing Management*, *18*(1), 4–13.

Lee, C. L., & Yang, H. J. (2011). Organization structure, competition and performance measurement systems and their joint effects on performance. *Management Accounting Research*, *22*(2), 84–104.

Mardon, R. E., Khanna, K., Sorra, J., Dyer, N., & Famolaro, T. (2010). Exploring relationships between hospital patient safety culture and adverse events. *Journal of Patient Safety*, *6*(4), 226–232.

McAlearney, A. S., Hefner, J., Robbins, J., & Garman, A. N. (2016). Toward a high-performance management system in health care, Part 4. *Health Care Management Review*, *41*(3), 233–243.

Messersmith, J. G., & Guthrie, J. P. (2010). High performance work systems in emergency organizations: Implications for firm performance. *Human Resource Management*, *49*(2), 241–264.

Mintzberg, H. (2013). *Simply managing: What managers do—And can do better*. Berrett-Koehler Publishers.

Neal, A., & Griffin, M. A. (2004). Safety climate and safety at work. In J. Barling & M. R. Frone (Eds.), *The psychology of workplace safety* (pp. 15–34). American Psychological Association.

Nembhard, I. M., & Edmondson, A. C. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior*, *27*(7), 941–966.

Polat, O., & Pakiş, I. (2011). Tıbbi uygulama hatalarında hekim sorumluluğu. *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*, *2*(3), 119–125.

Powell, M., Dawson, J., Topakas, A., Durose, J., & Fewtrell, C. (2014). Staff satisfaction and organisational performance: Evidence from a longitudinal secondary analysis of the NHS staff survey and outcome data. *Health Services and Delivery Research*, *2*(50), 1–306.

Ramanujam, R., & Rousseau, D. M. (2006). Organizational behavior in healthcare: The challenges are organizational, not just clinical. *Journal of Organizational Behavior*, *27*(7), 809–809.

Scotti, D. J., Harmon, J., & Behson, S. J. (2007). Links among high-performance work environment, service quality, and customer satisfaction: An extension to the healthcare sector. *Journal of Healthcare Management*, *52*(2), 109–124.

Sienknecht, R. T., & Van Aken, E.M. (1999). *A high-performance work system: Definitions, concepts, and practices*. In PICMET'99: Portland International Conference on Management of Engineering and Technology (p. 215). *Vol-1: Book of Summaries* (IEEE Cat. No. 99CH36310). Portland: IEEE.

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, *38*(5), 1442–1465.

Stone, P. W., Mooney-Kane, C., Larson, E. L., Horan, T., Glance, L. G., Zwanziger, J., & Dick, A. W. (2007). Nursing working conditions and patient safety outcomes. *Medical Care*, *45*(6), 571–578.

Sung, J., & Ashton, D. (2005). *High performance work practices: Linking strategy and skills to performance outcomes*. Chartered Institute of Personnel and Development (CIPD), ILO.

Surgevil, O., Tolay, E., & Topoyan, M. (2013). Yapısal güçlendirme ve psikolojik güçlendirme ölçeklerinin geçerlilik ve güvenirlilik analizleri. *Journal of Yasar University*, *8*(31), 5371–5391.

Wachter, R. M. (2010). Patient safety at ten: Unmistakable progress, troubling gaps. *Health Affairs*, *29*(1), 165–173.

Wahap, M. A., Tatoglu, E., Alison, G. J., & Demirbag, M. (2021). Countering uncertainty: High-commitment work systems, performance, burnout, and wellbeing in Malysia. *The International Journal of Human Resource Management*, *31*(1), 24–48.

Wang, Z., Xing, L., & Zhang, Y. (2019). Do high-performance work systems harm employees' health? An investigation of service oriented HPWS in the Chinese healthcare sector. *International Journal of Human Resource Management*, *32*(10), 2264–2297.

Weaver, S. J., Lubomksi, L. H., Wilson, R. F., Pfoh, E. R., Martinez, K. A., & Dy, S. M. (2013). Promoting a culture of safety as a patient safety strategy: A systematic review. *Annals of Internal Medicine*, *158*(5 Part 2), 369–374.

West, M., Dawson, J., Admasachew, L., & Topakas, A. (2011). *NHS staff management and health service quality*. Department of Health.

West, M. A., Guthrie, J. P., Dawson, J. F., Borrill, C. S., & Carter, M. (2006). Reducing patient mortality in hospitals: The role of human resource management. *Journal of Organizational Behavior*, *27*(7), 983–1002.

World Health Organization. (2020). https://www.who.int/europe/health-topics/patient-safety

Young, S., Bartram, T., Stanton, P., & Leggat, S. G. (2010). High performance work systems and employee well-being: A two-stage study of a rural Australian hospital. *Journal of Health, Organisation and Management*, *24*(2), 182–199.

Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High-performance work systems and occupational safety. *Journal of Applied Psychology*, *90*(1), 77–93.