

# Performance Indicators of Hospital Safety and Health Management Systems Based on the Nursing Staff Viewpoints

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## Abstract

**Background and Objectives:** Health management systems play a very pivotal role in prevention and reduction of hazards and improvement of staff performance; therefore, this study was aiming to evaluate the performance indicators of safety and health management systems in Vali Asr hospital of Fasa from the perspective of its nursing staff.

**Methods:** This descriptive-analytical study was performed in Vali Asr hospital, Fasa, Iran. Sampling was done via census; sample size consisted of 200 employees. Data collection tool was the standard hospital safety and health management system questionnaire. This questionnaire consisted of 53 items covering the 6 domains of: management leadership, employee participation, hazard identification, hazard prevention and control, education and training, and program evaluation and improvement. Each item was rated from 1 to 4 based on the Likert scale: Strongly disagree, Disagree, Agree, Strongly agree; 4 being the highest and 1 the lowest score. Data analysis was done via SPSS 19 using descriptive statistics, a t test and analysis of variance (ANOVA). Significance level was determined at  $P \leq .05$ .

**Findings:** Based on our findings, poor conditions in all domains were observed excepted in the employee participation domain. A significant relationship was observed between gender and the hazard identification, hazard prevention and program evaluation and improvement domains. No significant relationship was witnessed between work experience and the mentioned domains.

**Conclusions:** It seems necessary for hospital administration to put in more effort and pay more attention to occupational safety and health in the workplace. In order to eliminate faults and weaknesses, we need effective evaluation, continuous improvement of staff training programs.

**Keywords:** Health management, Hospital safety, Nursing staff

## Background and Objectives

Health management systems play a key role in prevention and reduction of hazards and improving the efficiency of staff in the medical centers.<sup>1</sup> Medical centers are considered to be a pivotal component of a country's health-care system where many of the problems and concerns surface, therefore, we cannot reform a health care system without studying them and trying to enhance their performance.<sup>2</sup>

Health promotion role has changed in hospitals, and it

is no longer limited to providing services to patients. Although nowadays patient safety is a fundamental issue throughout the world, safety is not just limited to patients, but includes other aspects as well such as; health and safety of the employees.<sup>3</sup> The purpose of implementing a safety and health management system in medical centers is to maintain and improve physical, psychological and social health of all employees, and to protect them against the threat of workplace hazards.<sup>4</sup> The World Health Organization (WHO) has considered safety and health management systems in its policies since its establishment and through the strategy of "Occupational health for all," it has played an important role in maintaining and improving occupational health.<sup>5</sup> According to the

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WHO, occupational safety and health is a multidisciplinary activity aimed at: (1) protection and promotion of health of workers by preventing and controlling occupational diseases and accidents eliminating occupational factors and conditions hazardous to health and safety at work; (2) enhancement of the physical, mental and social well-being of workers and support for the development and maintenance of their working capacity, as well as professional and social development at work; and (3) study, evaluation and control of environmental stress factors at work in order to reduce injuries, diseases, illnesses and health problems as well as improving employee performance.<sup>6</sup>

As people who provide care to patients, healthcare workers are exposed to a wide range of occupational hazards. Healthcare is a very dangerous profession, especially for people who are in direct contact with patients in hospitals, psychotherapy centers and nursing centers. According to a report published by the Occupational Safety and Health Administration (OSHA) in 2011, healthcare workers had experienced 253 700 work-related injuries and illnesses in hospitals, a rate of 6.8 injuries and illnesses for every 100 full-time employees. This is almost double the rate in private industries and even higher than construction workers.<sup>7</sup> In this regard, Denis et al stated that since a huge portion of the medical community are nurses, and by considering numerous professional roles they play which covers a wide range of care-related activities in different section of hospitals, therefore, nurses are the most susceptible group exposed to occupational hazards.<sup>8</sup>

Healthcare systems are gradually realizing the fact that in addition to reduction of hazards, improving employee's safety has numerous benefits. Numerous researches have shown that using a suitable employee safety programs and protocols can reduce expenses and employee turnover rates, improves patient satisfaction and its outcomes, and protects the reputation of healthcare organizations.<sup>9</sup> Employee safety protocols and programs help to protect healthcare workers against workplace threats, hazardous patients, work-related injuries, infections, illnesses and natural( potential) crises. The purpose of employee safety is to keep doctors, nurses, service workers, managers, and other employees safe so that they can help patients can achieve better clinical outcomes.<sup>10</sup>

The OSHA has introduced 6 key elements or indicators to assess hospital safety performance which includes management leadership, employee's participation, hazard identification, hazard prevention and control, education and training, and program evaluation and improvement. Therefore, to reach workplace safety and health goals, higher efficiency and effectiveness of occupational safety and health programs, hospitals and medical centers need

to pay more attention to planning and implementing the above mentioned indicators.<sup>11</sup>

Due to importance of hospital safety and health management systems and there has been no study in Iran with similar objectives based on the indicators of OSHA, hence, we did the present study aiming to evaluate the indicators of occupational safety and health and hospital health management systems based on the employee's viewpoints.

## Methods

This descriptive-analytical study was conducted in Vali Asr hospital of Fasa in 2015 aiming to evaluate the indicators of occupational safety and health and hospital health management systems based on the employee's viewpoints. Sampling was done via census; sample size consisted of 200 employees working in different units of the hospital. Inclusion criteria were willingness to participate and having at least 1 year work experience in the hospital. The only exclusion criterion was unwillingness to participate. In order to uphold ethics, participation was voluntary, first name and last names were not recorded on the questionnaires and permission for research was obtained from the hospital administration. Data collection tool was the standard hospital safety and health management system assessment questionnaire designed by the OSHA. This questionnaire consisted of 53 items covering the 6 domain of management leadership (8 items), employee participation (11 items), hazard identification (10 items), hazard prevention and control (8 items), education and training (10 items), and program evaluation and improvement (6 items). Each item was rated from 1 to 4 based on the Likert scale: Strongly disagree, Disagree, Agree, Strongly agree; 4 being the highest and 1 the lowest score. The original questionnaire was in English, which we translated in to Persian. To ensure its validity, we used the free translation method; meaning that after initial translation to Persian, the questionnaire was revised by nursing professors a few times and each time necessary corrections were made regarding wordings. After implementing the modifications suggested by the professors, the final draft was prepared. In order to evaluate the translated text, 15 nursing professors at the Fasa University of Medical Sciences assessed the questionnaire and verified its content validity. To determine its reliability, the questionnaire was distributed among 30 nurses at Fasa's Vali Asr hospital during a pilot study. Results from this pilot study revealed Cronbach  $\alpha$ .89. Data analysis was done via the SPSS 19 software using descriptive statistics, analysis of variance (ANOVA) and a *t* test. Significance level was determined at  $P \leq .05$ .

## Results

Based on our findings, 72% of the participants (144 individuals) were women and 28% (56 individuals) were male employees.

The participants' mean age and standard deviation was  $31.62 \pm 6.67$ , and their mean work experience  $12.63 \pm 6.51$ . The frequency distribution of employees is presented in Table 1, divided by units. The total mean score and standard deviation (SD) for each domain can be seen in Table 2; highest mean belongs to employee's participation ( $24.21 \pm 5.74$ ) and the lowest one pertained to program evaluation and improvement domain ( $11.36 \pm 3$ ). A significant relationship was observed between gender and the domain of hazard identification, hazard prevention and program evaluation and improvement. The female gender had the highest mean score in these domains (Table 3). No significant relationships were witnessed between work experience and the domains under study (Table 4).

**Table 1.** Frequency Distribution Based on Hospital Departments

Units	Number	Percent
ER	37	18.5
Internal	8	4
Men surgery	21	10.5
Women surgery	18	9
CCU	20	10
ICU	25	12.5
Infectious	16	8
Children	15	7.5
OR	40	20
Total	200	100

## Discussion

Since workplace safety and health plays a significant role in improving quality of care as well as effectiveness, performance and eventually efficiency, the present study was done aiming to evaluate the performance indicators of hospital safety and health management systems from the perspective of nursing staff at Fasa's Vali Asr hospital. Our results showed that except for employee participation, the medical center was in poor condition in all other domains. Since our study revealed that total mean score for management leadership was low, it is evident that hospital administration's ultimate attention, effort and commitment is essential for the hospital's safety and health management plans. Bottani et al stated that implementing effective occupational safety and health management in organizations would help to solve employees' occupational health problems effectively and this would act as a legal tool as well; also, effective safety management would increase the organization's safety level and consequently reduce hazards.<sup>12</sup> Harris writes that "generally, management is trusted with the responsibility of maintaining workplace safety and health." Management plays the key role in the success of a health program; therefore it must dedicate the necessary time and resources to ensure success of safety and health programs, express interest in personnel participation and welcome suggestions on what needs to be done. Our studied hospital had a poor performance in hazard identification domain as well.<sup>13</sup> In this regard, Stone highlights that "employers must identify hazards and take practical measures to maintain health and safety of their employees." They must keep an archive of all incidents and events, inform, educate and train, consult

**Table 2.** Total Mean Score and Standard Deviation for All Domains

Domains	Mean	Standard Deviation	Minimum	Maximum	Number
Management leadership	15.1650	3.96439	8.00	32.00	200
Employee participation	24.2150	5.74752	11.00	41.00	200
Hazard identification	19.3500	4.59271	10.00	33.00	200
Hazard prevention and control	17.9400	4.03831	8.00	30.00	200
Education	17.7450	3.61181	10.00	30.00	200
Evaluation and improvement	11.3600	3.00090	6.00	19.00	200

**Table 3.** Mean and Standard Deviation for the Relationship Between Gender and the Studied Domains

Domains	Men		Women		P Value (t test)
	Mean	SD	Mean	SD	
Management leadership	14.5714	3.90271	15.3958	3.97759	.187
Employee participation	22.9464	5.57077	24.7083	5.75839	.051
Hazard identification	18.3214	4.37392	19.7500	4.62813	.048
Hazard prevention and control	16.8393	4.17254	18.3681	3.91652	.020
Education	17.4643	3.61293	17.8542	3.61808	.495
Evaluation and improvement	10.5000	2.57964	11.6944	3.09359	.006

**Table 4.** Correlation Coefficients Between Work Experience and the Studied Domains

Domains	The Correlation Coefficient	P Value
Management leadership	0.043	.542
Employee participation	0.072	.310
Hazard identification	-0.013	.850
Hazard prevention and control	0.030	.674
Education	0.033	.647
Evaluation and improvement	-0.022	.757

with employees, collaborate, and coordinate all actions with contractors. Hazard identification is a continuous process which needs constant repetition, and its results need to be documented and considered by management during strategic planning.<sup>14</sup> Levey et al state that management must possess strong leadership, have commitment toward implementing safety and health management activities and provide effective programs in this regard.<sup>15</sup> In the medical center in our study, they were not in a good condition in education and training domain, which reveals that hospital management as well as nursing management and the educational and infection control supervisors all need to pay more attention to this issue. In this regard, Law et al express that the main purpose of staff education relating occupational safety and health is to prevent and control workplace hazards and eventually improve health and quality of work.<sup>16</sup> Jha and Epstein state that manager or employer must identify the educational needs of employees provide programs to ensure all employees are capable of following protection, safety and health regulations, constantly evaluate the programs and if necessary, make corrections in order to ensure effectiveness.<sup>17</sup> Huang et al also expressed that as an important and basic principal, hospitals and healthcare systems need to have regular and continuous plans for staff education and training on occupational safety and health management systems; also, new employees need to learn the process of reporting workplace injuries and illnesses. Up to date training programs must be provided on a yearly basis in order to protect the safety of employees. These programs could include the following: prevention of injuries and illnesses, patient management and ergonomics, safety and prevention of workplace threats, infection control and prevention, quick response to fire and natural disasters, chemical safety and equipment safety.<sup>18</sup> Vassie and Lucas explain that effective training helps to create a sense of belonging in employees that consequently increases their responsiveness toward safety at the workplace.<sup>19</sup> In an interventional study by Wang et al aiming to evaluate the effects of a training program on prevention of occupational hazards, results indicated an increase in awareness levels of subjects and the improvement of their performance re-

lating hazard prevention. Therefore, hospital health management needs to pay more attention to employee training on professional safety and take fundamental and effective measures regarding this matter.<sup>20</sup> Hazard prevention and control was another indicator in need of attention in our studied hospital. Regarding control and prevention of occupational hazards for healthcare workers, OSHA states that control and prevention programs must be up to date. Personal protective equipment must be provided in the workplace and employees must be required to use them.<sup>21</sup> Yassi et al express that using equipment which increases employee safety during work is one of the most important measures taken toward reducing risk of exposure to workplace pathogens among healthcare workers. Using safety equipment reduces injuries and illnesses by 70%.<sup>22</sup> Evaluation and improvement of safety and health programs is another domain requiring the attention of occupational safety and health management. Assessment and revision of employee safety and health programs needs to be an ongoing process. Employees should participate in the evaluation process and they need to be informed on the methods of evaluation occupational safety and health programs.<sup>23</sup>

## Conclusions

Workplace safety and health plays a significant role in improving quality of care, performance, effectiveness and consequently efficiency. In the present study, performance indicators of hospital safety and health management systems were in poor conditions in the domains of management leadership, hazard identification, hazard prevention and control, education and training, and program evaluation and improvement. Since hospital management plays the key role in organizing and establishing safety and health in the workplace, this issue needs to be considered a strategic priority. To this end, measures need to be taken so that employees have an active participation in the implementation of health policies, necessary programs need to be held continuously, threats to employee safety and health must be defined, identified and constantly evaluated, and preventive, protective and controlling measures must be taken and revised in case necessary. Since this research aimed at evaluating performance indicators of hospital safety and health management systems was the first of its kind in our country, we suggest these indicators be evaluated in other parts of the country as well.

## Competing Interest

The authors declared no competing interests.

## Authors' Contributions

CT and MB contributed to study concept and design, anal-

ysis and interpretation of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, administrative, technical, and material support, study supervision. FG contributed to study concept and design, acquisition of data, analysis and interpretation of data, critical revision of the manuscript for important intellectual content, statistical analysis, administrative, technical, and material support. SJ contributed to study concept and design, Acquisition of data, administrative, technical, and material support, and preparation of the manuscript. MA contributed to study concept and design, acquisition of data, administrative, technical, and material support, and preparation of the manuscript.

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### References

1. Thungjaroenkul P, Cummings GG, Embleton A. The impact of nurse staffing on hospital costs and patient length of stay: a systematic review. *Nurs Econ*. 2007;25(5):255-265.
2. Zwanziger J, Khan N, Bamezai A. The relationship between safety net activities and hospital financial performance. *BMC Health Serv Res*. 2010;10:15. doi:10.1186/1472-6963-10-15.
3. Laverty AA, Smith PC, Pape UJ, Mears A, Wachter RM, Millett C. High-profile investigations into hospital safety problems in England did not prompt patients to switch providers. *Health Aff*. 2012;31(3):593-601.
4. Abdullah NAC, Spickett JT, Rumchev KB, Dhaliwal SS. Assessing Employees perception on health and safety management in public hospitals. *International Review of Business Research Papers*. 2009;5(4):54-72.
5. Parand A, Dopson S2, Renz A1, Vincent C. The role of hospital managers in quality and patient safety: a systematic review. *BMJ Open*. 2014;4(9):e005055. doi:10.1136/bmjopen-2014-005055.
6. Glickman SW, Baggett KA, Krubert CG, et al. Promoting quality: the health-care organization from a management perspective. *Int J Qual Health Care*. 2007;19:341-348.
7. Ford MT, Tetrick LE. Relations among occupational hazards, attitudes, and safety performance. *J Occup Health Psychol*. 2011;16(1):48-66. doi:10.1037/a0021296.
8. Denis MA, Ecochard R, Bernadet A, et al. Risk of occupational blood exposure in a cohort of 2400 hospital health care workers position and environment analysis over three years. *JOEM*. 2003;45(3):283-288.
9. Landsbergis PA. The changing organization of work and the safety and health of working people: a commentary. *J Occup Environ Med*. 2003;45(1):61-72.
10. Hussain KA, Musarrat NM, Muhammad A, Wasim H. Impact of job satisfaction on employee performance: an empirical study of autonomous medical institutions of Pakistan. *Afr J Bus Manage*. 2012;6(7):2697-2670.
11. Safety and Health Management Systems: A Road Map for Hospitals. OSHA; 2013.
12. Bottani E, Monica L, Vignali G. Safety management systems: performance differences between adopters and non-adopters. *Saf Sci*. 2009;47(2):155-162. doi:10.1016/j.ssci.2008.05.001.
13. Harris A. Risk management in practice: how are we managing? *Clin Perform Qual Health Care*. 2000;8:142-149.
14. Stone RJ. *Human Resource Management*. 5th ed. Wiley; 2004:651-652.
15. Levey S, Vaughn T, Koepke M, et al. Hospital leadership and quality improvement: rhetoric versus reality. *J Patient Saf*. 2007;3:9-15.
16. Law WK, Chan AHS, Pun KF. Prioritising the safety management elements: a hierarchical analysis for manufacturing enterprises. *Industrial Management & Data Systems*. 2006;106(6):778 -792.
17. Jha A, Epstein A. Hospital governance and the quality of care. *Health Aff*. 2010;29(1):182-187. doi:10.1377/hlthaff.2009.0297.
18. Huang YH, Ho M, Smith GS, Chen PY. Safety climate and self-reported injury: assessing the mediating role of employee safety control. *Accid Anal Prev*. 2006;38(3):425-433. doi:10.1016/j.aap.2005.07.002.
19. Vassie LH, Lucas WR. An assessment of health and safety management within working groups in the UK manufacturing sector. *J Saf Res*. 2001;32(4):479-490.
20. Wang H, Fennie K, Burgess J, Williams AB. A training program for prevention of occupational exposure to blood borne pathogens impact on knowledge behaviour and incidence of needle stick injuries among student nurses in Changsha peoples Republic of China. *J Adv Nurs*. 2003;41(2):187-194.
21. Kongtip P, Yoosook W, Chantanakul S. Occupational health and safety management in small and medium-sized enterprises: an overview of the situation in Thailand. *Saf Sci*. 2008;46:1356.
22. Yassi A, McGill ML, Khokhar JB. Efficacy and cost-effectiveness of a needleless intravenous access system. *Am J Infect Control*. 2001;23(2):57-63
23. Johnson A, Baum F. Health promoting hospitals: a typology of different organizational approaches to health promotion. *Health Promot Int*. 2001;16(3):281-287.

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