

## Impact of Management Techniques on Reduction of Safety and Health Risks: Comparison of Public and Combined Military Hospitals in Pakistan

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### ABSTRACT

Occupational health and safety concerns at workplace have gained importance around the globe, but there is still a dire need to improve workplace conditions in Pakistan to reduce the injury risks. The purpose of this study is to investigate the impact of human resource management practices on the injury rates occurred in Pakistani public and combined military hospitals, and compare the results. This study used quantitative research approach to examine this dilemma of occupational health and safety. Data was collected through questionnaire from six public and six combined military hospitals employees (N=172) using stratified random sampling technique. Findings revealed that human resource management techniques (management commitment, reward system, communication & feedback and occupational stress) determine the injury rates and risks significantly among hospital employees. Differences in results of both types of hospitals have been observed. The findings of study provide deep insight into resolving the distress factors of hospital employees. The recommendations and practical implications have also been discussed.

**KEY WORDS:** Safety, risk, occupational, management, stress, health, hospitals.

### 1. INTRODUCTION

The concept of an occupational health and safety management system (OHSMS) has become evident over the previous twenty years. The issue of occupational safety and health is gaining recognition from researchers in Pakistan and around the globe due to its critical importance. The injury rates on workplace are increasing day by day. The engineering aspects are considered to be the injury reasons and therefore gained importance, whereas; relatively small proportion of accidents has been proved due to unsafe physical and mechanical conditions. Most of on-the-job injuries and accidents seem to result from employee unsafe acts at the site, the accidents are not generally caused by one mechanic or operator error, but the incidents are the tail-events results from the organizational factors on almost all system or process levels (Wilpert, 1994). The responsibility of accidents would not be only at part of technological systems. Employees, organizations, organizational & individual culture and groups collectively are the vital factors in designing, constructing, operating and controlling of these technological systems. In the recent times, this issue has been discussed as “human error” in relevant literature. Although, human factor contributes to accidents occurrences, but it has been found that behavioral reasons of accidents have less impact when incidents are found to be the part of technological systems (Pidgeon, 1991). The educated workers expect safer work environment; a environmental conscious workforce is definitely disposed of to articulate their disapproval for companies who demonstrate themselves as less focused towards occupational safety and health principles.

Studies have found that organizational safety attitudes and beliefs have a foremost impact on safety performance of organization (Ostrom et al., 1993). The concept of safety culture was evolved by accident of Chernobyl accident in 1986 which concentrated on organizational and human factors contributed extensively towards unsafe operations of machinery and technological equipments. Turner (1991) defined safety culture as “organization’s norms, beliefs, roles, attitudes, and practices concerned with minimizing exposure of employees to workplace hazards”. The basic purpose of developing safety culture is that workers should be aware of safety risks at workplace and they should continually look out on hazards occurred during operations (Ostrom et al., 1993). A safety culture constitutes safe behaviors among workers. Researchers have also found a direct relationship between organizational safety culture and organizational link. Some experts and practitioners explained some prevalent determinants of safety culture, having impact on injury rates (Turner, 1991; Pidgeon, 1991).

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This study intentionally eliminates some factors and purposes to examine impact of four factors in reducing injury rates i.e. management commitment, communication and feedback, rewards and psychological stress. The context of this study is the public and combined military hospitals of Pakistan. To the best of researcher's knowledge, there is no study available on these factors in health sector of Pakistan which provides rationale to conduct research in this area.

## 2. OBJECTIVES OF STUDY

- To examine the impact of these management techniques in determining injury rates in public and combined military hospitals of Pakistan.
- To better develop a common management theory for safety issues in health sector of Pakistan.
- To provide recommendations to management of public and combined military hospitals to develop some effective measures in eliminating the occupational safety and health risks.

## 3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 3.1 Management Commitment and Rewards System

The commitment of upper management towards safety contributes towards success and implementation of safety programs (Zohar, 1980). This commitment is evident from participation in safety committees, recheck the speed of work and devise the policy of safety in designing a job. Hofmann and Stetzer (1996) argued that employees working under a manager, who does not elaborate the safety, then employees perceive that safety in work environment is unimportant and thus causes injuries. The motivation to perform a safer job is due to two factor i.e. individual own concern with safety and manager's expressed concern for safety. In a USA Study, Cohen and Cleveland (1983) found that plant safety director had a direct routine contact with plant manager; hence reduce the likelihood of occurrence of injury rates. Safety issues must be implemented by management and can be observed through attitudes and behaviors of management (Hofmann et al., 1995). In a USA Veteran's Hospital (VAMC) study, management commitment was proved to be the most influential factor in reducing the number of injury cases; which is the initiative of a Medical Director. Garrett and Perry (1996) described that the devoted support from top management of hospitals would definitely achieve the safety program goals. O'Toole et al. (2002) concluded that management commitment was the important factor in developing perceptions about the safety climate of organizations.

A proper designed safety-incentive program would be beneficial in decreasing the safety risks. Safety-incentive programs must be implemented with the safety trainings and education. The rewards must be included for good safe acts instead of punishments for wrong acts (Peavey, 1995). Feedback, self recording, praise recognition, trade stamps and cash bonuses have been as nonmonetary benefits (Komaki et al., 1978). A good incentive program proposed the recognition and changes the behavior of workers. The incentive programs must have high visibility in organization. Distributing prize and money increase chance of desired outcomes and thus low accidents with more satisfaction (Swearington, 1996).

*H1.* The commitment of hospitals' management has a negative relationship with injury rate in hospitals.

*H2.* Reward system employed in hospitals has a negative relationship with injury rate in hospitals.

### 3.2 Communication and Feedback

Feedback has a critical relationship with employee performance, and hence decreases industrial accidents. The feedback on performance is communicated to employees through review of their behavioral data in safety held meetings (Roughton, 1993). The employees are encouraged to report to management about the hazards faced during operations. The employees must not be blamed in case of accidents occurrences to encourage communication in organizational setting. The communication is an important element of any prestigious organization which leads to trust and enhances the strength of organization. To implement safety practices, capable employees must be provided with feedback. Employees don't work in a safe manner unless they have enough authority to amend their own actions. Workers should have powers to avoid hazards (Turner, 1991).

*H3.* Communication and feedback play an important role in determining the injury rates at hospitals.

### 3.3 Psychological Stress

Tabatabaei et al. (2011) stated that workplace stress negatively determines the satisfaction of employees which thus become the reason of high occupational accidents. Kotze and Steyn (2013) conducted a study using ANOVA test in electricity Supply Company among 279 employees and results revealed that workplace stress has a foremost impact on safe environment of organization. Similarly, Shain (2012) elaborated the significance of workers' mental health and its prolonged effects on good safety culture. Storey and Billingham (2010) expressed that occupational

stress exhibits strong positive link with performance of workers at workplace and thus distracts their attention from the routine job. Saksvik (2002) explored that the implementation of safety processes is restricted by the stress raised during duties and work.

*H4.* The hospital workers occupational stress strongly determines the injury rates at hospitals.

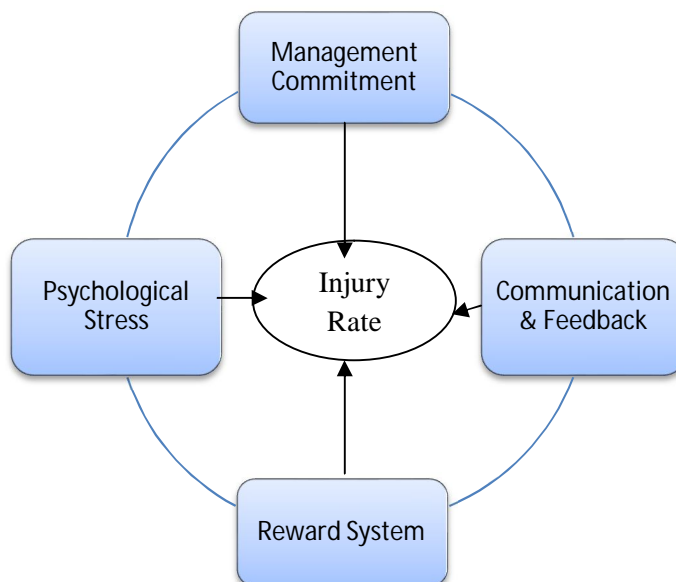


Figure 1. Proposed Theoretical Framework

### 3.4 Hospitals' Environment in Pakistan

The combined military hospitals are armed forces hospitals located in various cantonments around country and serve patients efficiently. General duty medical officers (GDMOs) carried out the administration system and specialist doctors are accountable for care and supervision of patients. CMHs are categorized into A, B and C categories according to their competencies and positions i.e. primary, secondary and tertiary care positions. Except all these amenities, employees are not completely satisfied with the safety services of hospitals. The public hospitals provide the services at District and Tehsil level in Pakistan, controlled by district and provincial government. A very limited number of hospitals meet the basic requirements of occupational safety and health in Pakistan. Healthcare workers are at greater risk for injury in public and combined military hospitals of Pakistan. The shift routines cause psychological stress among healthcare employees and they have to deal with. Various hazards raised in hospitals due to employees fatigue because there are long hours work, stress, change in hospital policy and rotation work. The hospitals employees have to face situations of life and death and they also have continuous interaction with employees. The occupational safety and health facilities are not available to hospital employees; thus received criticism and complaints by healthcare employees. The special services for hospital employees appear to be superfluous to overcome this deficiency. The defective hospital processes inject flaws in safety programs being implemented in hospitals. The safety of an employee is not the top priority of hospital administration. Various regular injuries to hospital employees are needle punctures, strains & sprains, toxic, communicable diseases, thermal burns (laundry and sterilizing areas) and dermatitis (antiseptics, medicines, handling cleansers and solvents). The most common diseases to healthcare employees are back strains and sprains.

## 4. METHODOLOGICAL DESIGN

The hospital environment was selected because the data of injuries was readily available and it was use as criterion to measure the impact of management techniques to decrease injury rates. This study is of climate survey nature; so the level of analysis was specified as organizational level. Six public and five combined military hospitals were included in this study. The universe of study was the employees of public and combines military hospitals. The stratified random sampling based on hospitals departments was used to collect data from hospital employees. The participation was voluntary. A pre-tested questionnaire based on five point likert (No extent=1, Greater extent=5)

scale was used as research instrument to collect data (Vredenburg, 2002). Three items was used to analyze each of these management constructs. Equal proportion of questionnaires was distributed in both types of hospitals; but combined military hospitals have high response as compared to public hospitals. Out of 250 distributed questionnaires among employees of both types of hospitals (public & combined military hospitals), 172 (69%) were returned completed which is a good response rate. A pilot draft of questionnaire was distributed among thirty employees to check reliability of items separately. Multiple regression analysis, reliability analysis, confirmatory factor analysis, t-statistics, and descriptive statistics were conducted to analyze the collected data.

## 5. FINDINGS OF STUDY

### 5.1 Injury Types in Public and Combined Military Hospitals

The researcher obtained the injury data of year 2012 from public and combined military hospitals. The records of public and combined military hospitals show that there is an obvious and apparent difference of injuries occurrence in respective hospitals. Needle injuries and allergic diseases are the major types of injuries from which the hospital employees are suffering. On the contrary, lacerations, exposure to toxics and skin diseases are less common among employees of both types of hospitals.

Table 1. Averages and Relative Percentage of Types of Injuries (Public Hospitals & Combined Military Hospitals)

Injury Types	Public Hospitals		Combined Military Hospitals	
	Mean Frequency/year	Fractions (Percentage)	Mean Frequency/year	Fractions (Percentage)
Needle prick/spick injuries	36	19.14	17	28.81
Allergic reactions	34	18.10	15	25.42
Mental stress	33	17.55	9	15.25
Disease exposure	29	15.42	6	10.16
Strains	22	11.70	4	6.77
Eye injuries	11	5.85	2.5	4.23
Abrasions	9	4.78	2.5	4.23
Skin disease	9	4.78	2	3.38
Lacerations/cuts	5	2.68	1	1.69
Total	188	100%	59	100%

### 5.2 Confirmatory Factor Analysis and Reliability Statistics

The constructs used in this study were adopted from several verified studies conducted in different contexts. The confirmatory factor analysis results indicate that all the factors loadings were equal or above the minimum criteria of 0.5 which is widely acceptable. The values of variance extracted (VE) are also close to or above than standard value of 0.5. The internal consistency of instrumental data is measured through Chronbach's alpha ( $\alpha$ ) measure. Management commitment, rewards, communication and feedback, occupational stress have acceptable reliability values of .833, .715, 0.773 and .789 respectively.

Table 2. Reliability Statistics

Proposed Constructs	Original Cronbach's $\alpha$ (previous literature)	Cronbach's $\alpha$ coefficient
Management Commitment	0.92	0.833
Rewards	0.94	0.715
Communication & Feedback	0.932	0.773
Occupational Stress	0.890	0.789

### 5.2 Regression Results and Model Fitness

Findings reveal that all variables have a significant relationship and determine the injury rates. The results of ANOVA statistics validate the fitness of model. The results of combined military hospitals (Adjusted  $R^2=.686$ ,  $F=75.556$ , Durbin-Watson=1.924,  $p=.000$ ) and public hospitals (Adjusted  $R^2=.724$ ,  $F=78.017$ , Durbin-Watson=1.877  $p=.000$ ) shows that injury rates are comprehensively determined by these four determinants. The correlation coefficient results regarding management commitment show that ((Public ( $\beta=-.308$ ,  $t=4.37$ ,  $p<.05$ ) & CMH ( $\beta=-.518$ ,  $t=4.68$ ,  $p<.05$ )) the variables are significantly related to each other. This gives support for the acceptance of H1. In case of rewards, the results of coefficients ((Public ( $\beta=-.428$ ,  $t=3.45$ ,  $p<.05$ ) & CMH ( $\beta=-.505$ ,  $t=4.86$ ,  $p<.05$ )) designate that the coefficients are statistically drastically different to zero and  $T$  values rewards

factor are also considerable and it endow with the basis for H2 acceptance which shows that reward system is also related to injury rates. The results about communication and feedback ((Public ( $\beta=-.353$ ,  $t=4.45$ ,  $p<.05$ ), & CMH ( $\beta=-.568$ ,  $t=4.27$ ,  $p<.05$ )) of two types of hospitals offer foundation for H3 acceptance. The occupational stress is also positively associated with injury rates ((Public ( $\beta=.435$ ,  $t=3.97$ ,  $p<.05$ ) & CMH ( $\beta=.426$ ,  $t=4.45$ ,  $p<.05$ )), so, the researcher accepts H4.

Table 3. Summary of Study Hypotheses

Attributes	Estimates ( $\beta$ )	p-value	Status
Management Commitment	Public (-0.308) & CMH (-.518)	0.012	Accepted
Rewards	Public (-0.428) & CMH (-.505)	0.000	Accepted
Communication & Feedback	Public (-0.353) & CMH (-.558)	0.030	Accepted
Occupational Stress	Public (0.435) & CMH (.426)	0.000	Accepted

## 6. DISCUSSION AND RECOMMENDATIONS

It has been concluded that hospitals' administration should take proactive measures to protect their employees. This study systematic ally investigates the elements of human resource practices that determine the injury rates. The results of study may assist in developing authentic occupational requirement in hospitals. The importance of these management practices could not be ignored because it has been proved that these techniques have a substantial effect in predicting injury rates. Furthermore, the safety performance of hospitals adds to the final productivity of hospitals. It is evident from findings that factor of management commitment is the most critical in the study because it has a strong relationship with happening of injuries. Hospitals should take step of front-end hiring and give training to newly hired employees. The risk management positions in hospitals must be the top management level. The safe practices must be taught in classes and make sure that it must be implemented at workplace. The injury rate at public hospitals is greater as compared to combined military hospitals because public hospitals have not a good safety programs. Due this reason, the public hospitals use reactive approach for injury prevention. The efficiently established rewards system in public hospitals would be the measure to prevent from the accidents issue. However, stress is the major cause of generating distraction from work among hospital employees. However, this could be due to social and environmental conditions of Pakistani society. There is a lack of communication between management and workers of hospitals. The safety programs and avoiding measures must be spread among hospital employees.

## 7. LIMITATIONS

Since this is first study on occupational safety of hospital employees, so the extension and replication of previous work is recommended. The public hospitals' environment is the challenging place to conduct research. The smaller number of hospitals and limited number of respondents impose limitations on generalizability of study findings. Due to cost and time limitations, the study was restricted to quantitative approach.

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