

OCCUPATIONAL HEALTH AND SAFETY AWARENESS AMONG INDUSTRIAL WORKERS: A CROSS-SECTIONAL STUDY

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Abstract

The research explored the health and safety of workers in the industrial sector in Rawalpindi, Pakistan; workplace risks for employees and the environment. The study identified poor conditions such as insufficient temperature, noise, lighting and low awareness of health and safety measures. Without ability to monitor the workplace, it is hard to understand the health risks of being exposed to chemicals place employees and those nearby in danger. Lack of protective equipment, combined with the health risk of cigarette smoke, pose greater risks for low income communities. The study recommends supplying equipment, awareness about hygiene practices, and educational campaigns. Based on the results of the Workplace Health and Safety Survey (Institute for Work & Health, 2016), which is a 27-items questionnaire provides an important understanding about safety in Rawalpindi's industries and to look forward to a future with better conditions in workplace safety and health and standards. The findings indicate that there is moderate level of health and safety awareness and increased risks of safety hazards including chemical hazards in the people working in the Rawalpindi organizations.

Introduction

Occupational health and safety (OHS) remains a consummate concern for associations worldwide, as workplace pitfalls can impact workers, outfit, and overall productivity. Despite advancements in OHS, work- related accidents and ails continue to exact a significant risk, leading to losses, fiscal losses, and reputational damage. The implementation of preventative systems, including comprehensive OHS management systems, has become crucial, particularly after catastrophic events like Bhopal and Chernobyl. These systems, such as OHSAS 18000 and the ILO - OHS 2001 guidelines, provide mechanisms to deal with different OHS issues and to support worker safety (Prajwal et al., 2020). Yet, the evidence for their usefulness is still limited, often because of the reliance on retrospective indicators that might not account for the complexities of OHS issues.

Healthcare workers make up 12 of the worldwide pool and work in one of the most dangerous environments, dealing with colorful physical, natural, chemical, and cerebral hazards. To understand and control these hazards is critical to icing quality case care (Mohammad et al., 2017). The part of nurses who are the principal actors in a patient's care delivery clearly describes the importance of their occupational health awareness in keeping the plant safe.

To make the workplace safe for our staff and guests is the priority in moment's workplace. Risk diminishments are needed not only to save lives but to save the terrain (Awan, 2001). That's why it's important to look closely at hazards and learn how to control them. Hazard assessment is like a tool to help us understand more about hazards and to control them using different styles (Hood, & Allison, 2001). The purpose of hazard assessment is to identify the different hazards that exist, how they behave, and how parlous they are (Beck, 1992). There are a number of patterns on how we can do this, anywhere from simple to more complex patterns (Chrostek, 2005). Because each alternative for each hazard is different, it is reasonable to utilize an amalgamation of patterns so that one can understand hazards (Pitt, 1994).

Mindfulness towards organizational safety and occupational health are necessary to achieve a healthy culture of the plant. Provision of safe work environments, effective leadership, good safety programs, training, and technology help to maximize a safer workplace. Adherence to laws and concentration on occupational health improve health and wellbeing (Anthony et al., 2007). Ongoing review and improvement lead to effective safety programs and demonstrating adequate enough to cope with changed risks. Safety culture is established through an association's values, beliefs, and practices and a high priority in sustaining workplace safety. Revision of established artistic patterns to put primary emphasis on safety requires collective sweats and consistency with organizational values. Through the promotion of a strong safety culture, associations can introduce a sense of responsibility and accountability among workers, promoting long-term occupations health and safety (Vredenburg, 2002). The current study examined the effectiveness of organizational health and safety management in three Pakistani organizations engaged in large-scale artificial systems in megacity Rawalpindi. The study attempted to gather perceptivity into safety culture and health awareness to assist in refining occupational health and safety culture in the original artificial industry.

Literature Review:

The textile industry is influenced by numerous factors concerning OHS (occupational health and safety) such as education, age, physical health, socio-economic conditions, management roles, compensation plans, OHS management standards, and labor behavior. Karagüven (1999) discovered previous research that correlated work accidents, stress levels, and education levels of textile industry workers; higher education is a factor to mitigate accidents. Ilmarinen (1997) presented issues posed by the aging workforce in regard to retaining workers' abilities to work through OHS.; Taylor et al. (1970) stated physical health, identifying chronic medical impairments that may limit working ability, particularly for older workers. Maguire (1987) introduced the concept of socio-economic factors and the conflict people have in perceptions between the worker, and management; the importance of addressing such concerns towards injury rates. Amador (2005) presented a toolkit for self-diagnosing hazards within garment factories to support economic benefits for investing in OHS. Baker (1992) outlined injury benefits and disablement gratuity for workers, as well as Shikdar and Sawaqed (2003) and Kristensen (2000) were concerned with OHS standards and enforcement to return safety to the workplace. These factors have been discussed around the world where implications exist toward the OHS landscape of the textile industry, including Pakistan (Malik, 2016).

Objectives:

1. To examine the hazards associated with textile and chemical industries
2. To explore the impact of position of workers at different levels on health and safety awareness.
3. To investigate the relationship of education and awareness among industrial workers.

Methodology:

Sample and Procedure

The present study comprised of 500 employees using convenience sampling technique from three different industries textile and wood industries Rawalpindi, ensuring representation across departments and hierarchical levels within each company. Participants from different departments filled out the Workplace Health and Safety Survey (Institute for Work and Health, 2016). Clear instructions were provided for completing the survey to ensure consistency in data collection across the three companies

Ethical Considerations

Employees were provided comprehensive information about the survey's purpose and voluntary nature. Confidentiality and anonymity were assured, and participants were informed that their involvement would not impact their employment status. Emphasis was placed on the importance of honest feedback.

Results:

The current study investigated the organizational safety and occupational health awareness among three different industries of Rawalpindi. For this purpose, The Statistical Program for Social Sciences version 24 (SPSS-24) was used to carry out preliminary data screening and calculating frequency and percentage. After that R was used to carry out mean differences for hypothesis testing and drawing conclusions.

Preliminary Data Screening:

Data screening is a crucial step in the data analysis process to ensure the quality and integrity of the dataset. Missing values outliers and careless replies in certain patterns that would unfavorably affect the study's findings were found, corrected, or eliminated from the raw data screening process. Utilizing SPSS, several data screening techniques were used, including assessing the frequency of each response item and screening for minimum and maximum values. At the time of data collection, questionnaires were also visually verified for missing items, and they were reviewed later at random.

Table 1

Frequencies and percentages of demographic variables of participants (N = 500)

Characteristics	n	%
<u>Gender:</u>		
Male	250	50%
Female	250	50%
<u>Education:</u>		
Uneducated	209	41.8%
Matriculation	200	40.8%
FA	91	18.2%
<u>Level of post/rank:</u>		
Workers	210	42%
Managers	200	40%
Head of Department	90	18%
<u>Family system:</u>		
Joint	251	49.8%
Nuclear	249	50.2%
<u>Residence:</u>		
Urban	246	49.2%
Rural	254	50.8%
<u>City:</u>		
Rawalpindi	236	47.2%
Other	264	52.8%

The gender distribution is balanced, with 50% male and 50% female participants. Education levels vary, with a significant portion being uneducated (41.8%), followed by individuals with matriculation (40.8%) and those with FA qualifications (18.2%). Notably, there are no participants

with a BA degree. In terms of professional roles, the majority are workers (42%), followed by managers (40%) and head of the departments (18%).

Independent Samples t Test

The Independent Samples t Test compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different.

Table 2

Mean scores Differences between Male and Female teachers on occupational health and safety were assessed.

Variables	Female	Male	95% CI				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t(498)</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	Cohen's <i>d</i>
Health and Safety	56.34(9.86)	56.23(10.96)	0.12	0.9	-1.71	1.94	0.01

Table 2 revealed that there were non-significant gender difference on occupational health and safety. Table also revealed very little to no effect size.

Table 3

Mean scores Differences between family system on occupational health and safety.

Variables	Nuclear	Joint	95% CI				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t(498)</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	Cohen's <i>d</i>
Health and Safety	56.53(10.41)	56.03(10.44)	0.52	0.59	-1.33	2.32	0.05

Table 3 revealed that there were non-significant difference between family system and occupational health and safety. Table also revealed very little to no effect size.

Table 4

Mean scores differences between area of residence and occupational health and safety

Variables	Rural	Urban	95% CI				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t(498)</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	Cohen's <i>d</i>
Health and Safety	56.54(10.27)	56.03(10.57)	0.55	0.57	-1.31	2.35	0.05

Table 4 revealed that there were non-significant difference between area of residence and occupational health and safety. Table also revealed very little to no effect size.

Table 5

Mean, Standard Deviation and One-Way Analysis of Variance in occupational health and safety across education

Variables	Uneducated	Matric	Intermediate		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
Health and Safety	54.76(10.46)	58.37(10.03)	55.18(10.49)	6.91	0.001

Table 5 showed mean, standard deviation and f-values for occupational health and safety across education. Results indicated significant mean differences across education. Results also revealed that educated workers were more aware of their health and safety as compared to uneducated workers who showed lower mean levels.

Table 7

Post hoc analysis of education and occupational health and safety among workers

category	Dependent Variable	I	J	(I-J)	P	95% Confidence Interval	
						LL	UL
Education	Safety	Matric	Uneducated	3.61	0.001	1.21	6.01
		Intermediate	Uneducated	0.43	0.93	-2.6	3.47
		Matric	Intermediate	-3.17	0.03	-6.23	-0.11

This table showed that Post hoc comparisons using Tukey's HSD test revealed significant differences in occupational health and safety scores across education levels. The difference in scores between uneducated and matric and matric and Intermediate were statistically significant.

95% family-wise confidence level

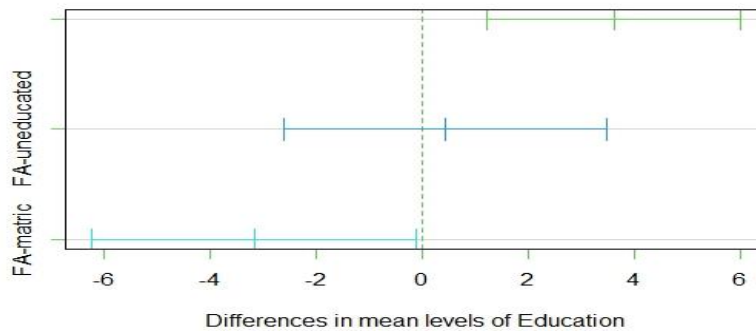


Figure 1: Occupational health and safety awareness across different education levels

Table 8

Mean, Standard Deviation and One-Way Analysis of Variance in occupational health and safety across different posts.

Variables	Workers	Managers	Head of the Department	F	p
	M (SD)	M (SD)	M (SD)		
Health and Safety	54.80(10.45)	58.37(10.03)	55.18(10.52)	6.88	0.001

Results of the table 8 indicated significant mean differences across posts. Results also reported that workers on higher posts were more aware of their health and safety as compared to workers on lower post who showed lower mean levels.

Table 9

Post hoc analysis of different posts and occupational health and safety

category	Dependent Variable	I	J	(I-J)	P	95% Confidence Interval	
						LL	UL

		Manager	Worker	3.57	0.001	1.18	5.96
Workers	Safety	Head	Worker	0.31	0.93	-2.73	3.36
		Head	manager	-3.26	0.03	-6.33	-0.19

This table showed that Post hoc comparisons using Tukey's HSD test revealed significant differences in occupational health and safety scores across posts. The difference in scores between managers and workers and head and managers were statistically significant.

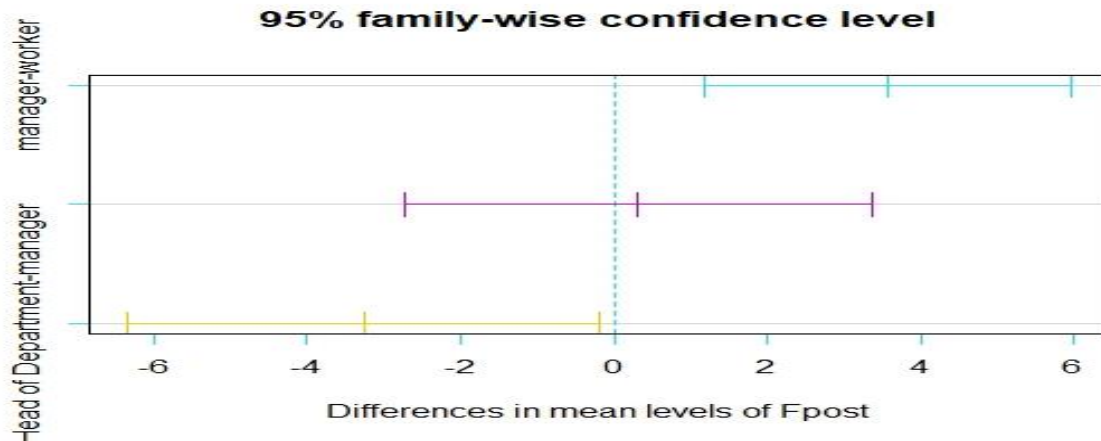


Figure 2: Occupational health and safety awareness across posts

Table 10

Health and safety awareness in industrial employees (N=500)

Range	Frequency	Percentage
29-46 (high awareness)	190	38%
47-62 (moderate awareness)	153	30%
63-81 (low awareness)	157	32%

The above table showed different levels of awareness among workers of different industries of Rawalpindi.

Table 11

Association between Education and health and safety awareness in industrial employees (N=500)

Safety and Health Awareness			Education			Total
			uneducated	matric	FA	
safety	High	Count	98	57	35	190
		% of Total	19.6%	11.4%	7.0%	38.0%
	Moderate	Count	53	68	32	153
		% of Total	10.6%	13.6%	6.4%	30.6%
	Low	Count	58	75	24	157
		% of Total	11.6%	15.0%	4.8%	31.4%
Total		Count	209	200	91	500

	% of Total	41.8%	40.0%	18.2%	100.0%
Note:	χ^2	cal	=	172.19,	Significance = .001**

The table highlighted that approximately 41.8% people were uneducated and among them 11.6% people have low level of safety and health awareness. However, many educated people have moderate to high safety and health awareness.

Discussion

The primary goal of the study was to examine the organizational safety and occupation health awareness in the organizations of Rawalpindi district. The aim of the study was also to explore the level of satisfaction of organizational safety and occupational health awareness among the workers, supervisors and managers in the organizations of district Rawalpindi. Additionally, the study aimed to analyze variations in the satisfaction of organizational safety and occupational health awareness across gender, residence, level of post/rank of participants, family system and educational level. The descriptive analysis was followed by the other researchers for investigating the reliability of scales (Cokes & Steed, 2003). Mean differences were calculated to examine differences and producing significant results which are as follows.

The first objective of this research was to explore the level of safety and health awareness in the members of the organizations. The most notable observation is that the majority of respondents fall within the high awareness range, constituting 38% of the total occurrences. This suggests that a significant proportion of individuals in the surveyed population have a high level of health and safety awareness. On the extreme end of the spectrum, the lower range of health and safety represents 32% of occurrences. This could warrant attention, as it suggests that a notable portion of the population may have a relatively low level of safety and health awareness. It might be beneficial for organizations to consider targeted awareness campaigns or training initiatives to uplift safety consciousness among this subgroup. Conversely, the moderate range of awareness, representing 30% of occurrences, indicated a group with a moderate level of safety and health awareness. Consequently, the combined 68% occurrences of high and moderate range awareness indicated that most organizations do have safety measures and have occupational health awareness as well.

Results of the table 11 reported association between education and safety and health awareness. Moreover, one way ANOVA results showed that there are significant differences based on education level of members of organization and level of post/rank of the members and the level of organizational safety and occupational health awareness. These results were in accordance with the results compiled by various researches (Ahsan & Imbeau, 2003; Karagüven, 1999; Malik, 2010). In addition, research carried out by Malik (2010) reported that majority workers were unaware about the legislation of organizational health and safety. Moreover, medical facilities and first aid was also not available to most workers. Label of chemical were in English and illiterate workers find it hard to understand and use it which could pose a threat to their life.

Another objective of the study was demographic differences which included gender base, family system, residence, level of post/rank and education level. It was hypothesized that there would be difference across the main study variables while the some results are somehow contrary. Mean differences tables showed that the results were non-significant across gender, area of residence and family system highlighting that all these are not impacting health and safety of workers in different industries of Rawalpindi city. Consistent with the findings, same results had been reported by a study carried out in Faisalabad, Pakistan (Malik, 2010). Fritshie et al (2004) concluded that male and female textile workers had similar risk of deaths from any cause. Moreover, Malik (2010)

reported that area of residence showed significant association with awareness about health and safety whereas Castles (1992) results were consistent with the present research.

The present study is imperative in its essence that it provided insights into occupational health and safety awareness among industrial workers in Rawalpindi, Pakistan. Conclusively, research associated to work is still not widely acknowledged as one of the most important factors for sustainable workplace improvement in many developing countries (Ahasan et al, 2003). Pasha (2003) noted that research on organizational health and safety has not yet been appropriately established and carried out in Pakistan; very little statistical data and research on OH&S are available, and only a small number of studies have been conducted to date; this may be due to the lack of environmental science and occupational health and safety programs offered at Pakistani universities (Pasha, 2003).

Conclusion:

In conclusion, this study systematically investigated organizational safety and occupational health awareness within the organizations of Rawalpindi district. The examination of satisfaction levels among workers, supervisors, and managers unveiled a noteworthy finding. The strong methodology, comprising reliability checks and non-parametric tests, adds to the credibility of these results. In general, this study adds meaningful insights for Rawalpindi organizations to fine-tune safety precautions, adopt specific training, and account for demographic sensitivities for an efficient safety and health awareness program.

Implications of findings:

The results of this research possess several implications for practice, tension intervention, and future research. The previously mentioned level of awareness and health highlighted different training gaps. Organizations can develop an intervention focused on increasing safety awareness of individuals who fall in the lower end of the spectrum of awareness. The amount of respondents in the high awareness range suggests that a majority of respondents are at a moderate amount of safety awareness. The intervention should be reinforcement of existing organizations initiatives taking advantage of the awareness already present within most of the group. The study provides pre-post assessment points for evaluating the successful outcomes of the existing safety initiatives. Organizations can put into place ongoing assessments that allow for ongoing monitoring regarding the efficacy of the interventions, and to make needed adjustments. The lack of significant differences across the variables of gender, residence, and family system suggests safety and health awareness is equally dispersed across even diverse demographic information. This strengthens them to build an inclusive safety culture that is directed towards meeting the needs of all employees. Organizations will benefit from improved organisms in their communications plans to note that safety and health information reaches all their members. This is crucial to maintaining awareness and engagement for members across education and occupational level.

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