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Impact of safety climate on safety performance: Evidence from textile dyeing industries of Pakistan

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Abstract

This study examines the relationship between safety climate and safety performance with mediating role of safety motivation and moderating role of safety training in textile dyeing industries of Pakistan. Data were collected from 180 textile dyeing industry employees working in different departments. Findings of the study revealed that safety climate does not result safety performance in textile dyeing industries of Pakistan while the relationship is mediated by the safety motivation. Contrary to expectations safety training does not moderate the relationship between safety climate and safety performance. The answers by the workers provided valued direction for finding the mechanisms through which safety at workplace can be improved.

Key words: Textile dyeing; Safety climate; Safety motivation; Safety training; Safety performance

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1. Introduction

Most of the industrial disasters are caused due to the absence or lack of proper safety management system [1,2]. Therefore, occupational safety have become foremost research area during the past three decades [2,3]. However, the prime goal of research has been forecasting safety related outcomes like mishaps and damages to provide helpful direction for improving occupational safety outcomes in industries and organizations [4,5]. Extensive knowledge is required about various aspects that influence safety beside the knowledge of how this influence occurs [6]. Previous studies revealed that the work place accidents and injuries occur due to human mistakes, technological faults and system errors which simultaneously activate the incident [4,7-9]. The researchers like Bowander [10], Gupta [11] and Chouhan [12] collectively agreed after investigating the accidents in various industries that occupational health and safety procedures, policies and plans require amendments especially in developing countries like India and Pakistan. Safety culture and safety climate, social and organizational factors do influence on safety performance [1,13-23]. Although, there is no evident consensus on the dimensions of safety climate [23] and safety culture [20] yet there are widely accepted predictors Shaheen et al., 2014

of safety outcomes like injuries and accidents [13, 24-27]. Few researchers argue that safety climate is a onedimensional latent variable [25], while others have the opinion that it is a multi- dimensional variable [13,24,28-30]. However, there is a widely accepted truth that safety climate plays a vital role in forming safety performance in organizations.

Previously, the focus was on safety climate and its outcomes but recently there has been an emergent attention in research on the relationships between organizational climate, safety climate and safety performance relationships [25,27,31-33]. Nevertheless, with the passage of time various researchers divulge new aspects of safety climate e.g. Neal et al. [25] investigate the relationship between safety climate and safety behavior by considering the mediating role of safety knowledge and safety motivation. Seo [34] regarded safety climate as management values as well as supervisory and co-workers support. Wu et al. [32] revealed that safety climate constitute the safety commitment of CEO, managers and employees, beside, their emergency response and risk perception [33], the relationship between employee's attitude towards using personal protective equipment and safety behavior was investigated.

Although, a lot of research work in safety management area has been reported from various parts of the world, yet there is no significant evidence of safety research from Pakistani textile industries. Pakistan is the 10th largest country in terms of available human workforce, approximately 20% of which is involved in industry. However, the health and safety practices in textile industry of Pakistan is still questionable and by having a glance on the previous accidents in textile industry of Pakistan one can imagine the current safety situation of textile industry of Pakistan. One of the major incidents is the incident of Karachi textile factory where 300 workers were burnt alive and died of suffocation. The foremost causes of these incidents are no fire safety arrangements, no segregation of raw material based on their fire hazard, no secure exit arrangements or practice of fire alarm drills, no checks before granting licenses and no appropriate training and knowledge about usage of safety equipment. Many Pakistani textile factories lack even basic safety equipment, such as alarms and sprinklers etc. So here is an imperative need to explore the safety practices and root causes of these incidents in textile sector of Pakistan.

This study was endeavored to examine the safety climate issues and their impact on safety performance in textile units of Faisalabad, a state of the Punjab province in the southern part of Pakistan. It is expected that the findings of the study will paint a true picture of safety issues and safety performance in textile dyeing industries of Pakistan.

2. Theoretical underpinning and hypothesis

2.1. Safety climate, safety training and safety performance

The literature of safety performance imply that different factors like situational and specific factors effect safety performance, safety behavior and safety out comes at work place [1,25]. The proposed model is built on the basis of Neal and Griffin's [25] model of work place safety. The model is based upon Campbell et al.'s [35] theory of performance. The theory of performance addressed about three (03) proximal determinants of individual's performance and three distal antecedents of one's proximal include performance. The determinants individual's skills, knowledge and motivation to perform. On the other hand distal determinants include training, personality [36] and organizational climate [37]. Hence it has been proved by Neal and Griffin [25] that personality and safety climate directly influence safety knowledge/training and safety motivation which in turn influence the safety performance behavior. This theory properly supports our model. Besides, this speculative structure enlightens not only the extents of the relationships which we estimated to observe between various antecedents and safety principles but also the routes through which workplace mishaps and injuries happen.

Safety climate is one of the safety performance indicators at workplace and a good number of studies explain the relationship between safety climate and safety performance [1,5,7,15,24,25,38,39]. Safety climate has been defined as being a set of perceptions held by individuals towards the issues of organizational safety [13,19]. The practical and theoretical implication of work place safety climate as a Shaheen *et al.*, 2014

construct develops from its capability to predict safety related outcomes as safety behavior and safety performance [5]. Thus theory of performance can be used to theoretically relate safety climate with safety performance providing the support for first hypothesis:

HI: safety climate is positively associated with safety performance

Huang et al. [5] considered the safety knowledge and safety motivation as proximal determinants of safety related behaviour but in this specific research, consistent with the Huang et al. model we considered safety training as a proximal determinant in its place of safety knowledge. Once the knowledge about safety has been acquired it must be transferred on the job for better results and excellent job performance [40]. Transfer of training and knowledge is the first requirement after acquiring training, as transfer of training is defined by Baldwin and Ford [40] "The degree to which trainees successfully apply in their jobs the skills gained in training situations, is considered positive transfer of training" [41]. A number of studies have addressed the importance of safety training [42] in improving safety performance. Mearns, et al. [13] argued that there are a number of ways for improving safety performance one of them is keeping the employees conscious about health and safety practices for example arranging seminars, meeting workshops and on job training about safety practices. A second way is formal occupational health and safety programmes, training courses about stress management, the use of safety tools and maintaining safety environment [43]. According to the theory of performance the distal determinants includes training and personality. According to the theory safety training is directly influenced by safety climate.

Evidence from literature proves that safety training is an essential component in convalescing and enhancing safety performance. A number of studies have been done to find out the link between safety climate and safety training [41] and safety performance but a few are available which addressed the variable of safety training as moderator. Thus we argue that:

HI2: safety training moderates the relationship between safety climate and safety performance

2.2. The mediating role of safety motivation among safety climate and safety performance

Safety motivation is one of the important person related antecedent of safety performance. Safety motivation reflects "an individual's willingness to exert effort to enact safety behaviors and the passion associated with those behaviors" [25]. Secondly, organizations can improve human safety by generating an environment that boosts the motivation to adopt safety-related behaviors. Without an environment that supports conducive safety behavior, information and abilities may be insufficient for safe performance of individuals. In enhancing safety performance through safety climate the employees' motivation is a central element, along with all other issues of management commitment [42]. Fogarty and Shaw [7] revealed that for safety performance individual's internal as well as external motivation, intention and willingness is required [39]. Moreover, the theory of performance by Campbell et al. [35] suggests that safety motivation is linked with safety climate which in turn directly influence the safety performance. Thus our third hypothesis is:

HI3: safety motivation mediates the relationship between safety climate and safety performance.

Theoretical Frame work:

3. Methodology

3.1. Instrumentation

The questionnaire of safety climate was adopted from Neal and Griffins [25] while the 6 items questionnaire of safety training, 6 items scale of safety motivation and 12 items scale of safety performance was adopted from modified version by Vinodkumar and Bhasi [2]. All the objects were appraised on a five point Likert scale with "1" representing strongly disagree and "5" representing strongly agree.

3.2. The Population and the sample

The population of the research study was the workers of textile dyeing industries of Faisalabad city in Pakistan as the previous accidents reveals that safety is a sensitive issue in textile sector. The sample consisted of mainly lower level workers of textile sector because they face more safety related problems at workplace. Data was collected by using convenient sampling technique. As it is difficult to collect data from companies specifically at lower level, so those companies have been preferred which are considered to respond properly.

Initially 250 questionnaires were distributed and 200 were received back. Among the received questionnaires 12 were found incomplete and were omitted from the study. Consequently 188 questionnaires were incorporated in the study. To ensure confidentiality, the respondent workers were requested not to write their name or the name of their industry on the questionnaire. Besides, the questionnaires were kept unsigned for the sake of truthful information from the respondents.

3.3. Sample characteristics

The sample constituted 80 % male and 20 % female workers. The ratio of females in the sample was low because it is not considered a virtuous for women in Pakistan to join any industry especially at lower level where labour intensive work is required. In case of qualification 2.2% of the respondents had masters and above degree, 8.9 % with bachelor's degree, 15% having intermediate, 40 % middle and 33.3% were primary pass. The ratio of primary pass and middle pass was more as compare to masters and graduates because at lower level employees are not much educated and in textile industries employers do not require labour having master degree holders and graduates. In terms

of age 6.7% were above 50 years, 28.9 % were between 40 to 50 years, 37.8 % were between 30 to 40 years and 21.1 % were less than 30 years. On the other hand safety climate is negatively associated with safety performance while safety training and safety motivation are significantly associated with safety performance.

In broad-spectrum we do not found a good support for our hypothesis. Contrary to the previous studies the first hypothesis which examined the relationship between safety climate and safety performance was rejected it was quiet revealing as compared to the previous studies. The possible explanation of the rejection of this hypothesis is in textile dyeing industries of Pakistan safety is not considered a big subject particularly upper management is not concerned about safety related issues at workplace. Most recent fire incidents in the Karachi and Lahore textile sector of Pakistan are a big evidence for this argument. One possible description can be given in terms of reciprocal determinism [44], indicating that people self-regulate their own behavior according to the situation and cues provided by environment.

Second hypothesis which test the moderating role of training between safety climate and safety performance was also rejected. After the data analysis informal interviews were conducted to find out the reason for the rejection of this hypothesis and the respondents reveal that in the textile dyeing sector specifically at the lower level there is not a norm to conduct training. At the time of hiring, labours are hired without any experience and training although in the documentation a plan has been written for training but there is not proper implementation of those trainings and it locks in papers in the form of adornment. During the informal interviews respondents also revealed that if trainings are conducted due to any pressure on the organization employees do not know where these trainings have been conducted and how to register and where to attend these trainings only a few employees have been chosen for participation in trainings for the sake of documentations and evidence. So the study fails to establish the moderating role of safety training between safety climate and safety performance in textile dyeing sector of Pakistan. The third hypothesis which examined the mediating role of safety motivation between safety climate and safety performance was accepted. The findings are in line with the observations of [2,25,39]. According to social-cognitive theories of motivation: the goal-setting theory; the expectancy theory [45]; and the self-efficacy theory [44], individuals embrace self-efficacy beliefs regarding their own behavior, set their own goals actively, and involve in self-evaluation. To make their approach effective in a complex world full of challenges and risks, people has to make virtuous decisions and stabilize their behavior accordingly. In the context of Pakistan, industrial workers are motivated to use safety equipment but they don't have an adequate amount of safety tools and utensils.

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Table 1: Pearson Correlation

	Mean	SD	1	2	3	4
Safety CLM	3.02	0.5249	1			
Safety TR	3.13	0.1271	-0.032	1		
Safety MOT	3.18	0.5280	0.005	0.427**	1	
Safety PPER	3.73	0.2317	-0.015	0.664**	0.929**	1

**. Correlation is significant at the 0.01 level (2-tailed)

Table 2: Regression analysis of outcomes

Predictors		Safety Performance		
	β	R ²	ΔR^2	
Step 1		.014		
Control variables				
Step 2	011	.014	.000	
Safety Climate				

a)Predictors: (Constant), Education, Age, Gender. b)Predictors: (Constant), Education, Age, Gender, safclavg

Predictors	Safety Performance		
	β	R ²	ΔR^2
Step 1 Control variables		0.014	
Step 2 Safety climate Safety training	0.006 .662***	0.444	.430***
Step 3 Safety climate*safety training	-0.457	0.444	0.000

Table 3: Moderated Regression Analysis of outcomes

P<.1, *p<.05, **p<.01, ***p<.001 control variables Age, Gender and education n= 180

Predictors	Safety Performance		
	β	R²	ΔR^2
Main effect: safety climate Step 1 Control variables		.014	
Step 2 Safety climate	011	.014	.000
Mediation: safety Motivation Step 1 Control variables		.014	
Step 2 Safety Motivation	.927***	.864	.850***
Step 3 Safety climate	018	.864	.000

 $P<.1,\ *p<.05,\ \ **p<.01,\ ***p<.001\ control\ variables\ Age,\ Gender\ and\ education\ n=180$

The major reason behind the acceptance of this hypothesis in context of Pakistan is a developing as well as according [45] a collectivist country and people has less chance for getting employment, but one individual has a saddle of all family members in this condition they are self-motivated to remain stick with their jobs by any mean and workers are self-motivated to use safety equipment.

The findings of the study contribute to the decision makers that they can enhance performance while keeping in view the safety climate issues at work place. They can avoid work place injuries and accidents by arranging a series of trainings and proper implementation of those trainings and creating a climate of safety at work place.

5. Limitations of the study and future research directions

Although these results help us to better comprehend safety related issues in textile sector of Pakistan, yet there are certain limitations which must necessarily be addressed by the future scholars. Presently, a limited sample data was collected; a larger and more diverse sample could provide ample information on the safety issues in the textile processing industries of Pakistan. Likewise, it will be beneficial to collect data longitudinally. Furthermore the data was collected from a specific region for more interesting and robust findings data could have been collected from different regions of Pakistan.

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