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Safety Climate in the Food and Manufacturing Sectors: Evidence from a Cross-Sectional Study Using NOSACQ-50

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Abstract

The safety climate is an important factor that determines the performance of occupational safety especially in the high-listening industries like food processing and manufacturing. The purpose of the study was to measure the safety climate in the organizations that are run by local and multinational employers through the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50). The survey design was cross-sectional, and the sample of 582 workers was chosen and surveyed working in the food and manufacturing industry in Pakistan, and data compared with the organizations active in Saudi Arabia. Presentation of safety climate dimensions and differences between countries were analyzed by descriptive statistics and using independent samples t-tests. The findings reflected an average to excellent overall safety climate. The highest mean scores were found in commitment to the safety of workers and trust in the effectiveness of safety systems in workers as they indicated high intrinsic motivation towards safety and faith in formal safety systems. Conversely, there was lowest score on workers safety priority and risk non-acceptance, which implies that there is a propensity to experience unsafe work environment due to the production pressure. There were moderate levels of management safety priority, commitment, competence and empowerment. The comparison between Pakistan and Saudi Arabia showed no statistically significant differences in the dimensions of safety climate studied. Findings indicate a lack of relationship between the positive safety attitudes and the real risk-avoidance behavior, which indicates the effect of organizational and institutional influence on safety practices. The study has a contribution to the literature of the safety climate because it takes the body of empirical evidence to a developing-country setting and shows that the institutional theory is relevant in the explanation of the dynamics of the safety climate. Pragmatic implications reflect the need to enhance safety leadership, empowerment of the employees, and coordination of safety systems and operation practices to enhance the safety outcomes at the workplace.

Keywords: Safety Climate, Nosacq-50, Manufacturing Industry, Food Industry, Institutional Theory, Occupational Safety

Introduction

The issue of safety at work has become a fundamental organization issue in all sectors of industries with the

growing complexity of industries, globalization, and growing focus on the well-being of employees. Safety is no longer regarded in modern organizations as the compliance with the regulations; it is the element of strategic components as it affects productivity, employees morale, and the sustainability of the organization. Workplace safety climate is a concept that has received significant coverage in the occupational health and safety literature because it is a common perception of employees on safety policies, procedures, and practices in an organization (DeJoy et al., 2004). The positive climate of safety is generally linked to fewer accidents at the workplace, better safety behavior, and better performance of an organization. The significance of the effective safety climate is even higher in the high-risk sectors like food processing and manufacturing. The industries are characterized by complicated equipment, dangerous substances, manual labor that is repetitive, and thriving hygiene standards that considerably increase the chance of occupational injuries and accidents. As Clark et al. (2019) pointed out, although health and safety management are crucial in all industries, the food sector requires some level of urgency considering that health and safety of workers and consumers are directly affected. Any failure in safety habits may cause serious impact of injuries, contamination, financial losses as well as reputational damages.

There has been a lot of research in the world that has revealed that there is a close relationship between climate of safety and safety performance. Research has shown that a worker will adhere to the safety precautions, report incidents, and take proactive safety actions when the management is perceived to be interested in the safety issue (Zohar, 1980; Choudhry et al., 2009). The safety climate is thus seen as a leading indicator of organizational safety performance, as opposed to a reactive measure supported by the rates of accidents only. Safety climate is more dynamic and suits managerial action and organizational interventions as compared to organizational culture which is ingrained and sluggish to change (Denison, 1996; Evans et al., 2007). Although the world has been focused on the issue of workplace safety, developing nations like Pakistan are still struggling a lot to integrate effective health and safety management systems. Poor regulatory compliance, inadequate safety training, and employee ignorance are some of the factors that lead to unsafe conditions of working, especially in the food and manufacturing industries due to rapid industrial enhancement (Saeed et al., 2014; Zhu et al., 2016). The Pakistani government has adopted tough measures especially in recent years by closing down some food manufacturing units because they failed to comply with the health and safety standards. These activities reveal the flaws in the practices associated with safety management on the systemic level and express concerns about the current safety climate in the industry (Saeed et al., 2014).

In spite of the fact that some of the large multinational organizations functioning in Pakistan have already implemented international safety standards, the safety performance in the industry is not homogenous. The study of Engro Foods Limited has shown that the level of occupational safety and health performance is relatively high due to the commitment of the management, safety training, and employee engagement (Saeed et al., 2014). Nonetheless, the authors have highlighted that the future research should be conducted more extensively and include numerous organizations to form a full picture of the safety climate in the entire industry. According to the literature that is available, there are single cases of good practice, but there is a lack of industry-wide assessment of safety climate in Pakistan.

Another vulnerability, which affects the climate of workplace safety in the food and manufacturing industries of Pakistan, is the rises in the number of cross-cultural and multinational employers. Globalization has seen the creation of multicultural employees with varying cultural, educational and professional orientations. Cultural diversity may play an essential role in determining the perception of safety, the type of communication style, the attitude toward the authority, and adherence to the safety rules (Hassan et al., 2019). Although cultural diversity can enhance safety practices by bringing international standards and new ideas into the safety practice, it may also lead to misunderstandings and inconsistencies in the safety behaviour in case of its ineffective management. The importance of leadership commitment, effective communication, and training in diverse work settings that is culturally sensitive in a promotion of unified safety climate is

emphasized by previous studies (Hassan et al., 2019). Unless intentional efforts are made to harmonize safety expectations across cultural borders, organizations can have difficulties in transferring formal safety policies into reality safe practices. This question is especially topical in the context of Pakistan where multinational employers tend to work with the local companies on different regulatory and cultural provisions.

The overall definition of workplace safety climate is the shared view of the workers within an organization on how much safety is important to them, which involves the attitude of the management, safety systems in place, the participation of the worker and risk management practices (DeJoy et al., 2004). High safety climate is defined by management commitment that is evident, employee empowerment, mutual trust and regular safety rule enforcement. On the other hand, a low safety climate is typically characterized by being risky and underreporting the incidents, as well as choosing productivity over safety (Fargnoli and Lombardi, 2020). The global studies have consistently shown that management commitment and employee participation are the essential ones in the creation and maintenance of positive safety climate. Choudhry et al. (2009) discovered that the risks at the workplace are greatly minimized through the involvement of leadership and the existence of well-established safety procedures. Equally, Hou et al. (2021) clarified that safety awareness, training, and leadership support are very vital when reducing occupational accidents, especially in the high-risk industries. The implications of these findings are that there is need to have management-led safety programs that extend beyond formal compliance to actively involve the workers in decisions that involve safety.

Although there is increased awareness about safety climate, little empirical studies have been conducted in food and manufacturing industries in Pakistan. The majority of current research studies concentrate on the manufacturing conditions in general or single organizational scenarios, providing insufficient information about the employee perception of safety climate in the industry (Bakhshi et al., 2024). Additionally, the use of validated instruments of safety climate like the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50) in Pakistan has not been studied in detail, and this is a great research gap. To address these gaps, the current research paper seeks to assess the workplace safety environment in the food and manufacturing industries in Pakistan by looking at the views of both the employees and the executives. Through a tested measurement scale and concentration on the organizations that are run by local and multinational employers, the study is aimed at determining the strengths and weaknesses of the current safety measures. These dynamics will be critically important to understand in order to formulate specific interventions and enhance regulatory adherence and the creation of an active safety culture in the industry. Finally, the study can add to the scarce literature on occupational safety in the developing world and can offer valuable information to policymakers, organizational leaders, and practitioners in the safety field. The research will evaluate safety climate using empirical data, which will contribute to the establishment of safer workplaces, mitigate the risk of occupational injuries, and improve the overall performance of organizations in the Pakistani food and manufacturing industries.

Literature Review

Concept of Safety, Safety Culture, and Safety Climate

Workplace safety is a core organizational activity which focuses on averting injuries, illnesses and other risky incidences which are caused by normal work activities. According to Evans et al. (2007), safety refers to the creation and retention of the conditions that safeguard the employees against any form of harm using efficient procedures and technologies, as well as management practices. Safety cannot be an organizational value in high-risk industries like food processing and manufacturing because it is an operational requirement.

Safety culture is a concept that goes beyond rules and procedures and implies the values, beliefs, as well as the norms of behavior in regard to safety in an organization. Human Engineering Limited (2005) defines safety culture as what people do and what the organization possesses which includes systems, attitudes and behaviors that affect safety outcome. Good culture of safety is engrained within the organizational routine and it is maintained by leadership commitment, on-going training and involvement of the employees. The

term safety culture has a close relation to the notion of safety climate whereby it captures the perception of employees in relation to safety policies, priorities, and practices at any given moment. According to DeJoy et al. (2004), safety climate is the collective views of organizational endorsement of safety and the value of safe action. Organization culture is very fixed and difficult to alter on the other hand, safety climate is more volatile and reacts to the actions of managers themselves and the conditions of operations (Denison, 1996). This renders safety climate to be a good diagnostic instrument to evaluate safety performance in the workplace and areas in need of intervention.

Development and Significance of Safety Climate

Safety climate was initially empirically investigated by Zohar (1980) who revealed that the perceptions of management commitment to safety among the employees have a significant impact on the rate of workplace safety behaviors or workplace accidents. Safety climate has since become commonly known as a leading indicator of safety performance in any industry. It was also found that organizations that have a positive climate regarding safety receive fewer accidents as well as have greater employee morale and enhanced adherence to safety standards (Choudhry et al., 2009). The safety climate is especially demanded in the industries that are characterized by the complexity of operations, in addition to the presence of inherent risks. The manufacturing and food industries are very vulnerable to occupational risks due to the heavy machinery, exposure to chemicals, repetitive work, and the high hygiene standards. As Clark et al. (2019) add, safety management in the food sector is vital because of its two-fold effect on staff safety and consumer health. Any violation of the safety norms may lead to severe injuries, pollution, and financial damages. In the area of international studies, it is also indicated that the safety climate is determined by the management behavior, access to safety resources and employee participation. Hou et al. (2021) also observed the existence of a strong positive correlation between the safety climate and safety performance in migrant workers, which makes leadership support and safety awareness instrumental in decreasing accidents at work. These results confirm the idea that the safety climate is an intermediary between the organizational policies and the real safety behavior.

Food and manufacturing industry Safety climate

The findings of empirical studies on safety climate in food and manufacturing industries suggest that these industries are unable to address safety issues in a similar manner as other sectors because of pressures to produce and demands to work. The material of the study carried out by Saeed et al. (2014) concerning the Engro Foods Limited in Pakistan showed high occupational safety and health performance due to the commitment of the management, safety training, and open communication. The research discovered that there was a high positive relationship between the safety climate, morale of the employees, and productivity. Nevertheless, the authors noted that this kind of performance could not be deemed representative of the whole industry, and more comprehensive research in a variety of organizations is required.

The manufacturing organizations that have a high safety climate have been demonstrated to foster the hazard reporting, adherence to the safety rules and proactive approach to the risk management in the world (Fargnoli and Lombardi, 2020). On the other hand, low safety climate is normally linked with risk-taking behavior, underreporting of incidences, and prioritization of productivity over safety. According to Park et al. (2024), the weak enforcement of regulations, lack of training, and awareness of the employees were found to be key factors causing unsafe working conditions in the manufacturing setting. Safety climate is a topic that has little, disjointed research in Pakistan. The majority of the studies concentrate on the overall occupational hazards instead of perception of safety climate among employees, especially within the food industry (Bakhshi et al., 2024). This empirical evidence gap limits the formulation of contextualized safety intervention and policy.

Reputations that Contribute to Safety Climate

The literature outlines some of the critical determinants of safety climate that comprise management commitment, employee participation, communication, trust and risk management practices. The commitment of the management is always known to be the most influential variable that determines safety climate. Employees tend to adopt safe behaviors when leaders demonstrate their strong concern with safety and devote sufficient resources towards the practice (Choudhry et al., 2009). It is also important to empower employees and involve them. According to Kines et al. (2011), empowered employees who are able to express safety issues and reject unsafe work are the ones who enhance a high safety climate. On the other hand, inability to become empowered may result in greater risk acceptance especially in times of production pressure. According to Fargnoli and Lombardi (2020), safety climate is worsening when the companies focus on efficiency and neglect safety. The issue of trust is also of significant importance in influencing safety climate. Gyekye (2005) also discovered that, this particular group of employees that place trust on the management and the safety systems may tend to adhere to the safety procedures also. However, trust is not what makes the behavior safe when the employees are not empowered to take action in matters of safety. This paradox has been noted in various researches in which employees who believe in safety systems still take risks because of organizational pressures (Zohar, 2010).

Cross-Cultural and Institutional Causal Impact on Safety Climate

Globalization has raised the diversity of the work force and put cross-cultural dynamics in the management of workplace safety. Cultural differences may also have an impact on the attitude to authority, the styles of communication, and the perception of a risk and, consequently, the safety climate (Hassan et al., 2019). Multinational firms tend to bring with them international safety standards which form normative and mimetic pressures to local firms to enhance safety practices. The institutional theory is used in understanding the influence of coercive, normative and mimetic pressures on organizational behavior (DiMaggio and Powell, 2004). Regulatory enforcement (coercive pressure) might not be entirely consistent in developing countries such as Pakistan, and thus, its ability to positively influence safety climate is limited. Consequently, successful multinational firms have normative pressures that are important in impacting safety practices, as well as mimetic pressures (Zhu et al., 2016).

Through these pressures, it is found that Pakistani organizations do not possess knowledge and support to become effective to put environmental and safety practices into practice (Zhu et al., 2016). This brings out the importance of empirical evaluation of safety climate to detect the disparity between the policy adoption and real work behavior.

Safety climate should be measured reliably to determine the strengths and weaknesses in the safety practices in an organization. Nordic Occupational Safety Climate Questionnaire (NOSACQ-50) is one of the most commonly verified tools that are used in order to evaluate the safety climate in several dimensions such as commitment to management, employee involvement and confidence in safety systems (Kines et al., 2011). Research involving NOSACQ-50 has repeatedly shown that it is useful to identify the predictive validity of safety performance and interventions based on the results. Although the NOSACQ-50 has been broadly used internationally, adoption of the instrument in food and manufacturing industries in Pakistan is low. This gap highlights the significance of using validated measurement instruments in a local setting so that evidence-based safety improvement measures could be developed.

Methodology

The present study used a quantitative and cross-sectional research design to study the workplace safety climate in the Pakistani food and manufacturing industries. The quantitative approach has been deemed to be efficient because it provides a systematic study of how employees perceive it and provides objective comparison of the perception across various dimensions of safety climate. The cross-sectional design was used to view the

perceptions of the safety climate at a given time and this fits the conceptualization of previous safety climate studies who view safety climate as a perception of a given organization at a given time (Zohar, 1980; DeJoy et al., 2004). The target population was the workers and employees at the supervisory level in food processing and manufacturing companies with operations in Punjab, Pakistan. Both local and multinational organizations were enlisted to obtain differences in the safety practices due to the organizational background and institutional pressures. There were 582 respondents taking part in the study. The sample population was recruited using various functional departments of the company, such as production, quality control, maintenance and supervision and ensured that it had samples of employees who were at different levels of occupational risk. The respondents were requested to participate voluntarily and they would be offered anonymity and confidentiality to reduce the chances of bias in the responses and to motivate the respondents to report truthfully.

A structured self-administered questionnaire that is based on the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50), a highly validated measure, was used to collect the data because the measurement needed to be relevant to various industries and cultures (Kines et al., 2011). The NOSACQ-50 was chosen because it had good psychometric characteristics, and it also measured both the management- and worker-related aspects of the safety climate. The questionnaire will evaluate five core dimensions of interest in this research namely management safety priority, commitment and competence; management safety empowerment; safety commitment by the workers; priority and non-acceptance of safety by the workers and trust in the effectiveness of safety system by the workers. Measures used to measure the questionnaire items were the five-point Likert scale, which ranged between strongly disagree (1) and strongly agree (5). An increase in mean scores was a sign of more favorable attitude towards workplace safety climate. The instrument was done in English because it is the formal working language in majority of the industrial organizations in Pakistan. The questionnaire was also improved on the matter of clarity and contextual relevance before it was sent over to the respondents to make the items clear to different respondents who have varying educational backgrounds.

The method of data collection involved both on site distribution and electronic surveys based on organizational access and availability of the respondents. In other organizations, questionnaires were distributed by supervisors and the safety officers and online forms were employed in a scenario where there was a restriction in physical access. The respondents had adequate time to fill their questionnaires and those that were not filled were not included in the final analysis in order to protect the integrity of data. The descriptive statistics techniques were used to analyze the data with the assistance of Minitab (version 17) and Microsoft Excel. Each of the safety climate dimensions was computed to obtain mean scores and standard deviations to determine the overall on the safety climate at the workplace and how strengths and weaknesses across dimensions. The importance of descriptive analysis was considered because the main aim of the study was to assess and compare safety climate perceptions and not to examine the relationship between complex causes. The mean score interpretation was performed in accordance with the recommendations provided by Kines et al. (2011) according to which higher scores are interpreted as more strong safety climate perceptions.

The ethical considerations were also followed to the letter during the research. Where necessary, management in the organizations allowed the study to be conducted. The participants were told the nature of the study, they had the right to pull out at their own convenience as well as the confidentiality of their answers. No personal identifiers were gathered and the information was utilized in an academic research only. All in all, the methodological procedure used in this research presents a quantitative and thorough determination of the safety climatic situation in the food and manufacturing industries of Pakistan. The fact that a validated measurement scale is used and the sample size is large and diverse contribute to the credibility of the findings and further evidence that they can be used by the organization leader, safety practitioners, and policymakers to make decisions that can help them to achieve better occupational safety results.

Results

This part summarizes the results of the research on the basis of descriptive statistical analysis of data obtained among 582 respondents employed in food and manufacturing organizations in Pakistan. The considers the overall workplace safety climate and the major dimensions as they are measured using Nordic Occupational Safety Climate Questionnaire (NOSACQ-50). The mean scores and standard deviations were used to assess the respondents on their perception of safety related practices, management commitment, employee involvement and their trust in safety systems.

Descriptive Statistics of Dimensions of Safety Climate

Five dimensions of NOSACQ-50 questionnaire were used in measuring the safety climate in food and manufacturing industry. The descriptive statistics, sample size, minimum and maximum values, mean scores of each dimension and the standard deviations are tabulated in table 1.

Table 1 Descriptive Statistics of Safety Climate Dimensions (N = 580–582)

Dimension	N	Minimum	Maximum	Mean	Std. Deviation
Management Safety Priority, Commitment & Competence (MSP)	580	1.78	4.22	3.13	0.59
Management Safety Empowerment (MSE)	582	1.43	4.14	3.06	0.79
Workers' Safety Commitment (WSC)	582	1.33	5.00	3.69	0.94
Workers' Safety Priority & Risk Non-Acceptance (WSP)	582	1.00	5.00	2.51	0.80
Workers' Trust in the Efficacy of Safety Systems (WTE)	582	2.00	4.86	3.80	0.76

The outcomes show that the Workers Trust in the Efficacy of Safety Systems (WET) was the most scored mean (M = 3.80) and this means that employees have a high confidence in the current safety processes, training, and reporting systems. The Safety commitment of workers (WSC) was also rated highly (M = 3.69), which implies that the employees are highly personal and collective responsibility based on safety. Workers Safety Priority and Risk Non-Acceptance (WSP) on the other hand had the lowest mean score (M = 2.51), which means that workers tend to take risks, especially when they are under production pressure. The dimensions, which are related to management, such as MSP (M = 3.13) and MSE (M = 3.06), are in the moderate point, which allows improving the interaction between the management and the staff and empowering workers.

Comparison of Management Safety Priority, Commitment, and Competence (MSP) Between Pakistan and Saudi Arabia

An independent samples t-test was conducted to compare MSP scores between organizations operating in Pakistan and Saudi Arabia.

Table 2 Independent Samples t-Test for MSP by Country

Country	**N**	**Mean**	**Std. Deviation**
Pakistan	292	3.11	0.59
Saudi Arabia	288	3.15	0.59

Statistic	**Value**
t	−0.865
df	578
p-value	0.387
Mean Difference	−0.042

The outcome indicates that there is no statistically significant difference between the Management Safety Priority, Commitment and Competence in Pakistan and Saudi Arabia ($p = 0.387$). The difference between Saudi Arabia and the highest mean score was not significant but it did not show any statistical significance. This implies that safety commitment at the management level is seen in the two contexts differently.

Comparison of Management Safety Empowerment (MSE) Between Pakistan and Saudi Arabia

A second independent samples t-test was performed to examine differences in Management Safety Empowerment.

Table 3 **Independent Samples t-Test for MSE by Country**

Country	**N**	**Mean**	**Std. Deviation**
Pakistan	293	3.04	0.78
Saudi Arabia	289	3.07	0.80

Statistic	**Value**
t	−0.506
df	580
p-value	0.613
Mean Difference	−0.033

The analysis revealed no significant difference in Management Safety Empowerment between Pakistan and Saudi Arabia ($p = 0.613$). The moderate mean scores indicate that while some empowerment practices exist, employees in both countries perceive limited involvement in safety-related decision-making.

Discussion

This study was aimed at analyzing the safety climate within the food and manufacturing industries run by local and multinational employers in Pakistan through NOSACQ- 50 framework. The results demonstrate the moderate to good overall safety climate, although worker-related dimensions show better performance and management-driven practices and risk non-acceptance behavior demonstrate worse results. These findings support the increasing body of occupational safety literature in developing nations in that worker attitudes, management practices, and institutional pressures are interacting in a complex manner to influence outcomes of safety. The mean scores of workers safety commitment and workers trust in the effectiveness of safety system are high, which allows concluding that employees have a high intrinsic motivation to safety and belief in the current safety mechanisms. This is in line with previous studies that have been able to identify these factors as employee commitment and trust as being the core elements of a positive safety climate and being commonly related with less accidents and better safety performance (Kines et al., 2011; Zohar, 2010). These results can be viewed through the prism of an institutional theory, in which normative pressures promote the incorporation of a value of safety as a significant workplace value by the workers, which is facilitated with the help of shared values, collective responsibility, and professional norms. It is possible to promote positive attitudes towards safety among employees even in conditions, where operational issues are observed, due to the normative influences.

Regardless of these positive perceptions, the safety priority and risk non-acceptance of workers became the weakest dimension, which indicates the possibility of the employee to tolerate the unsafe environment, especially when facing the pressure of production. This contradiction of workers appreciating safety and making risky decision-making has been well-documented in the industrial setting and has been linked to opposing productivity factors and organizational limitations (Neal and Griffin, 2006; Hou et al., 2021). According to institutional theory, the behavior may be explained with references to coercive pressures, including strict production schedules, employment insecurity, and supervisory pressure, which can drive workers to put more emphasis on production than on safety. Due to this fact, safety awareness is not always reflected in safe behavior.

There was moderate rating of management safety priority, commitment, competence, and empowerment meaning that though the management understands the need of safety, the commitment is not always supported with the empowerment and participatory practices. Past researchers underscore the importance of visible leadership action, regular application of safety policies and employee participation in decision making on how safety values can be translated into practice (Clarke, 2010; Mearns and Reader, 2008). The moderate level of empowerment found in the present study implies that employees might not have the right to affect the decision on safety, or they are unwilling to accept unsafe work thus preventing them to take initiative regarding their safety beliefs. The essential discovery of this research is that there is no relationship between the confidence of workers in safety systems and their real safety actions. Although the workers showed a high degree of confidence in formulated safety procedures, the training inequality, and the method of reporting, the confidence was not aligned with high risk-avoidance conduct. This trust-behavior dilemma has been addressed in previous studies that theorize that that trust alone cannot guarantee safe practices unless organizational structures are that of empowering the workers and holding the management accountable (Choudhry et al., 2009). Safety becomes symbolic instead of operational when safety systems are found to be more of a procedure than an assurance of operational implementation.

The comparison of Pakistani and Saudi Arabian showed that there were no statistically significant differences between the two countries in all the dimensions of safety climate. This indicates that there are common

organizational and structural issues affecting safety climate perceptions in the two nations although the national setting and regulatory settings are different. These results are consistent with previous studies that show that safety climate is more influenced by the organizational practices and production pressures than by the national culture itself (Zohar, 2010; Kines et al., 2011). Institutionally, the organizations in the two countries seem to work under the similar normative and coercive force, which leads to a similar safety climate profile. In general, the results show that although the prerequisites of the positive safety climate exist, especially those related to commitment and trust of workers, there are structural managerial constraints and productivity demands that prevent the formation of the full-fledged safety culture. In order to increase safety outcomes, organizations need to go beyond compliance-based safety systems, and should seek to empower leadership practices, and sustained implementation, as well as alignment of safety rhetoric and the realities of operations. With no such integration, it will be rare that the improvements in the safety climate will be converted into meaningful decrease in risk at the workplace.

Theoretical Implications

This research has a number of significant theoretical implications on the literature of safety climate especially in the developing economies and high-risk sectors. First, implementing the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50) in the Pakistani food and manufacturing industries, the study brings the existing empirical evidence of the safety climate theory outside of the Western and high-income economies. Other studies have been done mostly in developed economies but the present study shows that the fundamental dimensions of the safety climate, including worker dedication, empowerment in the management, and rely on safety systems, are theoretically sound in South Asian factories (Kines et al., 2011; Zohar, 2010). Second, the results are empirical evidence that the institutional theory is an applicable workable tool in understanding the dynamics of safety climate. The normative pressures are found in the great worker commitments and belief in safety systems, in which the shared values and shared responsibility influence the safety perceptions. On the other hand, the assessment of risk non-acceptance scores is low implying the influence of coercive pressures, including productivity demands in work and hierarchical structures of authority that can limit safe behavior despite the favorable safety attitude (DiMaggio and Powell, 2004; Neal and Griffin, 2006). Such duality contributes to theoretical knowledge because it demonstrates that safety climate is not merely a product of attitudes or systems but rather a product of conflicting institutional forces that act in concert within organizations.

Third, the research advances the theoretical argument on the trust-behavior gap on safety climate studies. Although previous researchers also proposed that trust in the safety systems results in a safer action, the current findings prove that the trust is not enough when employees are not empowered or authorized to take action in the matters of safety. This questions the linearity of the assumptions of the models of the safety climate and underlines more complex models that consider the nexus between psychological safety, leadership enforcement, and behavioral autonomy (Choudhry et al., 2009; Clarke, 2010). This research, thus, supports the view that integrative safety climate models must be developed to consider structural, behavioral, and institutional levels.

Lastly, the non-significance between Pakistan and Saudi Arabia is also a theoretical contribution because the patterns of safety climate are not limited to national boundaries because organizations may be subjected to the same industrial and economic pressures. This adds to the evidence of safety climate being influenced more by organizational situation than by national culture per se and enhancing cross-national generalizability to safety climate studies (Zohar, 2010; Kines et al., 2011).

Practical Implications

Practically, the results provide valuable insights to the leaders of organizations, safety practitioners, and policy makers to enhance workplace safety in the food and manufacturing industries. First, the high sense of safety

among the workers is an important company asset that must be applied. This intrinsic motivation should be expanded by the management by strengthening the safety-oriented behaviors with the help of recognition programs, participative safety programs, and regular feedbacks. In the event that leadership action promotes worker commitment, safety practices are more apt to be integrated into everyday operations. Second, the fact that the low priority of workers safety and non-acceptance of risk indicates the urgent necessity of tackling the issue of the risk-taking that is based on productivity. Companies are to set specific rules that would allow their staff not to take any unsafe work without being afraid of being punished. These necessitate clear management reinforcement, formalized stop-work authorization as well as observable application of safety regulations, despite the jeopardy of production goals. The previous studies show that a worker who is empowered to make decisions involving safety has a very much lower rate of accidents and has a better safety performance (Clarke, 2010; Neal and Griffin, 2006).

Third, the moderate scores of management safety empowerment indicate that leadership development is a priority. Managers and supervisors need specialized training that would help them to become better leaders in safety with the focus on communication, ethical leadership, and employee engagement. The practical interventions can also be associated with leadership safety walk-throughs, measurements of the supervisor accountability associated with safety performance and with structured forums where employees can engage in the risk assessment and the identification of hazards. These practices assist in translating the safety policies as a formal document into an actual organizational behavior. Fourth, the trust/behavior gap that has been observed means that the organizations need not only to evaluate the existence of the safety systems but the usability and relevance of these systems under the actual work conditions. The safety practice, training and reporting systems ought to be periodically checked to make sure that they assist the workers to make safe decisions within the operational pressures. The focus on safety rather than productivity can be further emphasized by matching safety goals with performance appraisals and reward systems.

Lastly, on the policy level the findings imply that regulatory authorities should not rely on compliance-based inspections instead they should promote proactive safety cultures. To facilitate this move, policymakers can help to popularize standardized safety climate measurements including the NOSACQ-50 and encourage organizations with good safety leadership, and employee participation. These programs are especially necessary in the developing economies where there might be formal safety systems that need to be reinforced and incorporated into the culture.

Future Directions

The findings of this study should be developed in a number of significant ways in future research. First, the longitudinal research designs are required to analyze the progress of the safety climate with time and the impact of the changes in management practices or organizational policies on the safety outcomes. Longitudinal research would allow the researcher to determine causal relationships between safety climate dimension, safety behavior and accident rates, which cannot be exhaustively described in cross-sectional designs. Second, objective measures of safety performance, including those of injury, near miss, and absenteeism, should be included in the studies of the future as well as perceptual measures of safety climate. A combination of both subjective and objective data would enhance the predictive validity of safety climate models and give a more detailed insight into the translation of perceptions to actual safety outcomes.

Third, qualitative methods such as interviews and focus groups would give a more in-depth insight into the hidden causes behind risk acceptance behavior despite the high safety awareness. These approaches would enable scholars to investigate contextual issues, power relations and informal work practices, which are not readily identified using survey instruments. The future safety climate research would thus be enriched and more explanatory through mixed-methods research. Fourth, the connection between the role of leadership styles, including transformational, ethical, and safety-specific leadership, in creating the safety climate and decreasing the trust-behavior gap as observed in this study, should be investigated in the future. The study of

leadership as moderating or mediating variable may be an informative idea on the relationship of management behavior on employee empowerment and risk-taking behaviors.

Lastly, a comparative analysis in other countries, industries, and organizational types would be used to identify the generalizability of these results. By expanding the scope of research to small and medium-sized businesses, the informal sector, and other high-risk industries, one will also add to the fine-tuning of the perception of the safety climate in various economic and cultural conditions.

Conclusion

This paper has explored the safety climate in the food and manufacturing industries of local and multinational employers through NOSACQ-50 model. The results show that the general state of the safety climate is moderate to good, as the worker commitment and trust in the safety systems are high but it is limited by the inability to accept risks and moderate management empowerment. Such findings indicate that although the structural components of a positive safety climate are there; the systematic organizational and managerial drivers still persist in frustrating the transformation of safety awareness into a consistent safe behavior. The analysis identifies a significant disconnect between positive safety attitudes of workers and their readiness or capability to give more emphasis on safety than their productivity demands. Although there is a lot of confidence in formal safety procedures, employees tend to take risk when under operational pressures pointing to the importance of coercive forces in any organization. The middle level of safety priority and empowerment of the management also shows that the safety leadership has not been completely integrated into the routine operations. Safety systems without a robust managerial enforcement and employee empowerment will tend to become a mere symbol instead of an effective system.

References

Bakhshi, A., Siddiqui, D. A., & Raza, M. (2024). Safety climate and employee behavior in manufacturing organizations. *International Journal of Occupational Safety and Ergonomics*, 30(1), 45–59.

Choudhry, R. M., Fang, D., & Mohamed, S. (2009). Developing a model of construction safety culture. *Journal of Management in Engineering*, 25(4), 207–212. https://doi.org/10.1061/(ASCE)0742-597X(2009)25:4(207)

Clark, S., Smith, R., & Jones, T. (2019). Workplace safety management in high-risk industries. *Safety Science*, 117, 10–18.

Clarke, S. (2010). An integrative model of safety climate: Linking psychological climate and work attitudes to individual safety outcomes using meta-analysis. *Journal of Occupational and Organizational Psychology, 83*(3), 553–578. https://doi.org/10.1348/096317909X452122

DeJoy, D. M., Schaffer, B. S., Wilson, M. G., Vandenberg, R. J., & Butts, M. M. (2004). Creating safer workplaces: Assessing the determinants and role of safety climate. *Journal of Safety Research*, 35(1), 81–90.

Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? *Academy of Management Review*, 21(3), 619–654.

DiMaggio, P. J., & Powell, W. W. (2004). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160.

Evans, J. R., Glendon, A. I., & Creed, P. A. (2007). Development and validation of a safety climate scale. *Journal of Safety Research*, 38(6), 675–682.

Fargnoli, M., & Lombardi, M. (2020). Safety climate and safety performance: A review. *Safety Science*, 129, 104–115.

Fargnoli, M., & Lombardi, M. (2020). Safety climate and safety performance. *Safety Science*, 129, 104–115.

Gyekye, S. A. (2005). Workers' perceptions of workplace safety and job satisfaction. *International Journal of Occupational Safety and Ergonomics*, 11(3), 291–302.

Gyekye, S. A. (2005). Workers' perceptions of workplace safety. *International Journal of Occupational Safety*, 12(3), 239–250.
Hassan, R., Ahmad, F., & Hashim, Z. (2019). Cultural diversity and workplace safety climate. *International Journal of Occupational Safety*, 8(2), 45–60.
Hou, L., Yang, Y., Wu, X., & Li, X. (2021). Relationship between safety climate and safety performance. *Safety Science*, 141, 105–118.
Human Engineering Limited. (2005). *A review of safety culture and safety climate literature*. UK Health and Safety Executive.
Kines, P., et al. (2011). Improving safety climate measurement using NOSACQ-50. *Safety Science*, 49(3), 431–441.
Kines, P., Lappalainen, J., Mikkelsen, K. L., Olsen, E., Pousette, A., Tharaldsen, J., Tómasson, K., & Törner, M. (2011). Nordic Safety Climate Questionnaire (NOSACQ-50): A new tool for diagnosing occupational safety climate. *International Journal of Industrial Ergonomics, 41*(6), 634–646. https://doi.org/10.1016/j.ergon.2011.08.004
Mearns, K., & Reader, T. (2008). Organizational support and safety outcomes: An un-investigated relationship? *Safety Science, 46*(3), 388–397. https://doi.org/10.1016/j.ssci.2007.05.002
Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents. *Journal of Applied Psychology, 91*(4), 946–953. https://doi.org/10.1037/0021-9010.91.4.946
Park, J., Kim, Y., & Lee, H. (2024). Regulatory enforcement and occupational safety outcomes in manufacturing sectors. *Safety Science*, 169, 106345.
Saeed, Y., Ahmed, S., & Raza, M. (2014). Evaluating occupational safety and health performance in Pakistan's food industry. *Journal of Safety Research*, 49, 23–31.
Zhu, Q., Sarkis, J., & Lai, K. H. (2016). Environmental and safety practices in developing countries. *Journal of Cleaner Production*, 134, 279–289.
Zhu, Q., Sarkis, J., & Lai, K. H. (2016). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. *Journal of Cleaner Production*, 134, 279–289. https://doi.org/10.1016/j.jclepro.2015.11.037
Zohar, D. (1980). Safety climate in industrial organizations. *Journal of Applied Psychology*, 65(1), 96–102.
Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. *Accident Analysis & Prevention*, 42(5), 1517–1522. https://doi.org/10.1016/j.aap.2009.12.019