

RESEARCH ARTICLE

# Investigating the Impact of Safe, Healthy, and Quality Environment Practices in Textile Industry of Pakistan: A Commitment Towards Sustainable Development

Muhammad Umer Qudoos<sup>1</sup>, Muhammad Hanif Akhtar<sup>\*2</sup>,  
and Junaid Zafar<sup>3</sup>

<sup>1,2,3</sup> *Department of Commerce, Bahauddin Zakariya University, Multan*

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**Abstract:** This paper aims at analyzing the impact of the quality of work-life (QWL) regime comprising the standard operating practices related to workers' health, safety, and better environment on the performance of textile firms in Pakistan. Data for the study were collected through a response mechanism by distributing structured questionnaires among five hundred and four (504) workers in the textile manufacturing firms at various industrial zones in five major cities of Karachi, Islamabad, Multan, Lahore, and Faisalabad. The analysis was conducted through Partial Least Squares (PLS) based on Structural Equation Modeling (SEM). Results of the study reveal that a healthy and conducive work environment (HCW) invariably improves employees' performance. These include health practices and more rest hours during work and flexible working hours so the workers can work efficiently according to their abilities. Likewise, providing a smoke-free work environment tends to help workers to perform well at the workplace.

**Keywords:** Quality of work-life (QWL), healthy and conducive work environment (HCW), sustainable development goals (SDGs), firm performance, structured equation modeling (SEM)

**JEL Classification Codes:** J01, J08, J81.

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\*haneefakhtar@gmail.com

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## 1 Introduction

The concept of sustainable development (SD) has been among the most relevant topics worldwide, since the time United Nations World Commission on Environment and Development (WCED) released the "Our Common Future" report (Fonseca and Carvalho, 2019). The said report defines SD as "development that meets needs of the present without compromising the ability of future generations to meet their own needs" (UN, 1987, p. 54). However, sustainability is confronted with enormous challenges, e.g., ensuring simultaneous economic and social development, ensuring environmental protection all around, achieving a higher quality of life for all the people, and protecting all living beings and the planet. In this context, seventeen (17) SDGs (along with other 169 goals) included in the UN's document, namely, "Transforming our World: The 2030 agenda for Sustainable Development" (Desa, 2016) primarily focused on:

- a. fostering the integration of sustainability regimes into the organizations' strategies worldwide;
- b. addressing current and future stakeholder needs; and
- c. contributing to the achievement of sustainable development (SD) for society at large.

Since the publication of the above-mentioned report, the concept of sustainable development is understood as a commitment from business and industrial organizations that seek business excellence (Carvalho et al. 2019; Rocha and Searcy, 2012) and sustained success (Santos et al., 2012). The employees of an organization are considered the key players in ensuring a company's success, while healthy workers tend to play an instrumental role on the company's road to success. Employers need to manage employees and provide them with a pleasant and conducive work environment. The firms become more efficient and effective as the workers become willing to perform beyond their sphere of duties by volunteering on particular tasks and helping others, fetching new ideas, and putting in extra hours to complete pending tasks (Ahakwa et al., 2021b). The work environment plays a critical role in our daily lives, and people tend to perform the right things while they are in fine fettle (Odai et al., 2021). Given the technological revolution, dynamic transition, and globalization in the job market, the firms are shifting from efficiency to effectiveness. Given this strategic shift, the growth of global culture needs a focus on managing workers' and employers' interests at work more than ever before. Most of the workers end up spending a significant part of their lives at work. Thus, maintaining a favorable working environment proves a must-go concept for employers to promote employees' satisfaction through a healthy and conducive work environment (HCW).

To attract and retain talented workers, a firm must ensure good quality working conditions typified as a favorable working environment (Mora et al. 2020). Some environmental factors highlighted in the empirical works include safety plans, e.g., work safety, the safety of labor, safety training programmers, health-related issues including ease of periods, flexible working hours, smoke-free environment, amenities including first-aid and emergency help, best sanitary services, and good quality drinking water, etc. (Kaynak et al., 2016; Vaishali et al., 2017; Zavadskas et al., 2017; Khalil et al., 2020; Malik et al., 2011; 2020; Schwatka et al., 2020).

Quality work life (QWL) is deemed to be an essential determinant of employees' work performance. Consequently, a firm's success is perceived to be connected with workers' contentment and good health. Ergo, every organization may ensure to provide its human resource pool with a conducive working environment as crucial as reasonable remunera-

tion, adequate growth opportunities, job safety with security, etc. A supportive working environment helps to bring a generous culture of sharing and caring from other successful organizations (Mora et al. 2020).

### 1.1 A Healthy Workplace

Various definitions of a healthy workplace and healthy work environment have substantially evolved, and further developments are still underway. Starting from a significant focus purely on aspects of the physical environment and dealing with the biological, chemical, and physical components of ergonomic hazards, these definitions have been extended to include the physical and health factors (including lifestyles) and, more importantly, psycho-social factors as well. Conversely, unhealthy workplaces are reported to exert negative psychological and physical consequences on the workers, ranging from irritability and stress to fatigue and insomnia (Yoshioka et al., 2013; Ilies et al., 2015; Pfeffers, 2018). The definition of a healthy workplace put forward by the Regional Office of the World Health Organization for the Western Pacific reads as follows: "A healthy workplace is a place where everyone works together to achieve an agreed vision for the health and well-being of workers and the surrounding community. It provides all members of the workforce with physical, psychological, social, and organizational conditions that protect and promote health and safety. It enables managers and workers to increase control over their health and to improve it, and to become more energetic, positive and contented." (WHO, 2020) A conducive workplace along with a healthy environment is the main focus of employees' well-being programs considering the influences and changes the type and procedures of work exert upon the health of the workforce. These programs are designed to provide adequate initiatives and incentives for workers' good health and working conditions as shown in figure 1 adopted from (Burton and WHO, 2010).



Figure 1: Employees' well-being program

## 1.2 Sustainable Development and Healthy Workplace

As per Fonseca and Carvalho (2019) "Organizations can play a significant role in the advancement of Sustainable Development, and companies with Quality, Environmental, and Occupational Health and Safety (QEOHS)-certified management systems address the three Sustainability Dimensions (economic, environmental, and social)". The key dimensions of an employee's well-being program are deliberated as under:

1. **Healthy People:** This lens covers the workers' needs, including improved health services, along with awareness about healthy practices and appropriate lifestyles (e.g., provision of free medical, vaccinations, etc.)
2. **Healthy environment: (Healthy working conditions):** To ensure an HCW with good nutritional choices and the best possible environment to ensure desired behavior by the workers is an essential responsibility of management (e.g., necessary shower facilities, bike racks, etc.).
3. **Healthy Vision: (Healthy management approach):** This aspect covers an active commitment to management, appropriate management practices, and policies to support and encourage desired employees' behaviors (e.g., no-smoke premises, flexible working policies, etc.).

The study by Malik et al. (2011) investigates the impact of the work environment on employees' performance in the context of Pakistan, testing a model based on the five dimensions of the work environment. The authors collected data from the 115 employees of Pakistan Telecommunication Company Limited (PTCL) and employed regression analysis. All of the independent variables were strongly and significantly correlated to employee performance. The regression analysis revealed that the variables of communication practices, training and development, and physical working conditions were important determinants of employees' performance. Their study suggests that the work environment has a significant impact on an individual's ability to meet performance targets competently, and work safely.

Recent occupational accidents urge contemporary enterprises to put more emphasis on ensuring the safety practices and occupational health of employees. In this regard, the pressure from both the business and social milieu, as well as the regulatory channels, have played an important role as also posited by Kayanak et al. (2016). Their study examined the occupational health and safety (OHS) practices incorporating the five dimensions, i.e., organizational safety support, occupational accident prevention, first aid training and support, health and safety rules, and overall safety procedures and risk management. The impact of OHS practices on job performance, organizational commitment, and work alienation was sought by analyzing the data through SEM using the least-squares method. Their results suggest that all of the dimensions of OHS practices positively impact organizational commitment, as well as the employees' job performance. The organizational safety support and health and safety rules decrease the work alienation, whereas the first aid training and support increase the work alienation.

The study by Salman et al. (2016) analyzed quantitatively how employee retention is affected by factors of motivation, job satisfaction, and safe health environment by employing the survey technique to get filled 250 survey questionnaires among the pharmaceutical industry employees in Pakistan. : The study results reveal a significant impact of the safe health environment on employee retention. Whereas, this relationship between employee

retention and a safe health environment is mediated by the levels of employee motivation and job satisfaction equally. The study suggests fostering the health protection policies to enhance the employee motivation and satisfaction and thereby ensuring the retention of high-performing employees. Mora et al. (2020) have investigated the impact of work safety and health practices on employee productivity analyzing the data through regression analysis. The regression results reveal a significant impact of work safety on the employee's work productivity.

### 1.3 The Research Gap

The present research is mainly based on the notion that a company's performance needs to be well-connected with the community and workers' boon that could redefine their working conditions. Dynamically, the research aims to attach workers' self-interest to the interest of the employers. In a preliminary review of the literature on QWL and HCW, it was deduced that not enough empirical work had been carried out on these aspects in the context of textile manufacturing firms in Pakistan. Since the textile industry holds the largest share in the manufacturing sector of Pakistan and is a significant source of foreign exchange earnings, it was perceived as appropriate to explore the subject matter and carry out an empirical study on QWL and HCW in this sector. The preliminary exploration leads to the study research question as follows:

*Can a firm achieve better and sustainable performance by ensuring QWL and HCW regimes for its employees?*

### 1.4 Significance and Objectives of Study

This study contributes to the extant literature on QWL in many ways. Firstly, it attempts to answer an essential and very general question as to whether healthy, safe, and better environmental practices impact the performance of textile firms in Pakistan? Secondly, selecting the parameters perceived to be the significant determinant of firm performance is novel in terms of research in a Pakistani context. Finally, it allows the policymakers and the state to pursue policies that are more relevant towards boosting firm performance by adopting healthy, safer, and better environmental policies for the workers in the textile industry in Pakistan. All in all, the present study is envisaged to achieve the following research objectives:

1. To analyze the impact of safety practices on the performance of textile firms in Pakistan.
2. To assess the impact of health-related practices on the performance of textile firms in Pakistan.
3. To investigate the impact of work-environment-related practices on the performance of the textile sector in Pakistan.
4. To suggest appropriate measures for managers of textile firms and policymakers in the country to ensure improved performance of the textile industry.

Given the fact that economic, environmental, and social dimensions of a sustainable development regime are partially addressed by the well-known International Standards (ISO, 2004, 2008, and 2016), our study is also expected to contribute to advanced knowledge concerning the adoption of Sustainable Development Goals (SDGs), and fostering their

application by organizations concerned. By investigating the engagement of the sampled companies in contributing toward relevant SDGs of the United Nations' Agenda 2030, the areas for improvement can be identified. This is expected to assist in creating necessary awareness regarding appropriate decision-making, and guiding policymakers for the requisite implementation of the agenda in question. Hence, the findings of such empirical investigations can foster an all-inclusive and sustainable economic growth. This can contribute to employment generation, advancing sustainable industrialization, promoting innovation, and reducing inequalities in compliance with the SDGs.

The rest of the study is organized as follows: Section 2 presents a brief review of the literature on QWL and its determinants. Section 3 expands on the methods and materials proposed for this research. Section 4 describes findings and links those findings with the extant research. The final part concludes with the policy implications.

## 2 Literature review

As the world continuously shifts its focus towards a sustainable environment, this reinforces the need for a better working environment. Many researchers have studied that the work environment tends to impact the performance of employees. An unstable work environment leads to low or poor performance, while a well-defined and well-established work environment leads to better performance. A high-quality workplace also improves the firm's ability to keep talented and skilled workers for a long time. Low-quality workplaces with poor lighting, heavy noise, and scanty cooling facilities in hot environments lead to health and safety problems. An unimproved workplace disengaged employees and becomes a hurdle in their performance (Massoudi and Hamdi, 2017).

### 2.1 Healthy People

Employees prefer to retain themselves in an organization where they discover a suitable environment to work along. Employees' satisfaction is associated with the environment that they face in the organization. It is postulated by Junejo et al., (2020), that the firms with low employee turnover rates are more stable and possess the competitive advantages of most experienced workers compared to the firms with high employee turnover rates. To realize effectiveness, efficiency, job commitment, and higher output by the workers, organizations need to provide them with a safe and healthy environment (Junejo et al., 2020).

Mental stress due to the work environment impacts the personal life of the employees, and they also experience productivity loss. It has been discovered that mentally depressed work experience brings low growth in their rankings. Firms are also exposed to failures due to the anxiety and depression of the employees. In European Union, almost 64% of the productivity losses are due to workers' depression during work. Depressed workers are six times more risky employees than non-depressed workers (Ivandic et al., 2017). According to World Health Organization (WHO), there are six essential blocks of a favorable work environment: suitable availability of resources, equal distribution of work, motivation of workers, the safety of the workers, sympathetic, working circumstances, and proper health facilities for workers as no compromises can be made on health. The organizations provid-

ing these facilities gravitate towards a favorable environment for workers (Lohmann et al., 2019).

Idris et al. (2018) also attempted to explain the factors of work satisfaction as discussed in the literature. The employees' work environment, work motivation, and job incentive are taken as dependent variables of job satisfaction in the Tax Services Office, Jakarta. The Director-General of Tax surveyed 350 respondents. Correlation and regression tests were applied to data using SPSS. All the three factors (work motivation, job incentives, and work environment) collectively and individually had a significantly positive impact on the employees' job satisfaction. The study by Bjärntoft et al. (2020) examined the flexible work provisions that facilitate the workers at any workplace. Organizational factors like leadership, psychological and occupational, and behavioral factors like overtime, over-commitment, and boundary management are considered the indicators of work-life balance (WLB). Overtime work and over-commitment were found to be negatively correlated with WLB. The variables, namely leadership, perceived flexibility, boundary management, social support, and organizing work information, correlate with WLB positively. It is recommended to promote psychological resources, minimize job prerequisites, and increase job requirements and boundary management flexibility.

Lopes et al. (2017) investigated the nexus of work independence and employee involvement in achieving organizational tasks effectively. Different models are used to analyze the relationship by taking macro/country-level variables and micro/individual-level variables, sampling the thirty-three European countries in the analysis. The effect of variables was different at the macro level than at the micro level. Complete trust and union density had a higher impact on employee involvement, but only complete trust impacted work independence. It was also found that the power of decision-making for employees was not affected by employee involvement; instead, work independence can impact decision-making ability.

Another study by Ivandic et al. (2017) investigated the impact of job disorders on the employee's work performance. Social, health, environmental and attitudinal determinants are taken to measure work performance disability. Regression analysis is applied to the Model Disability Survey of the World Health Organization (WHO) conducted in Chile in 2015. It is found that there is a massive gap in the knowledge of work performance depression, and anxiety, and managers need to understand more determinants that can eliminate depression among workers.

## 2.2 Healthy Vision

Significant contribution has emerged through Corporate Social Responsibility (CSR) to provide workers safe and HCW to enjoy working for the organization's benefit. The widespread growth of the CSR regime has given awareness to the organizations that society and workers are as much crucial as shareholders are. Their health and safety measures have the ultimate value and are the force behind the success of an organization. Care and concern for the employees help an organization attract talented people and increase their job satisfaction. In return, employees wholly and solely contribute to the corporate innovation process of the organization (Yang et al., 2021). Still, there is a need to establish increased factors related to a safe and healthy environment so that workers feel safe and healthy while at work.

To enhance the knowledge in the field of work environment, Zavadskas et al. (2017) examined the nexus between safe, sustainable, HCW and work performance. The multiple criteria decision-making (MCDM) approach is applied to assess the reliability of the tools to solve health problems and a safe work environment. Economic, social, and physical environmental factors are analyzed under the MCDM approach to investigate the difficulties faced in decreasing mortality rate, misuse of energy, manufacturing and construction level, and climate change in Vilnius. The techniques like Complex Proportional Assessment (CO-PRAS), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), Evaluation based on Distance from Average Solution (EDAS), and Simple Additive Weighting (SAW) were recommended as reliable to solve the work-related environmental problems.

The absence of leadership leads to the failure of an organization. So, leadership is focused on in the study by Akbar and SE (2017), employing the case study technique to investigate how work environment and leadership jointly and individually impact the employees' work performance in a private university, Jakarta. Data were quantitative and collected through questionnaires. Results indicate that leadership has a higher impact than the work environment on employee performance. Results recommend that the university improves the skills of its Human Resources (HR) and Managers that can motivate and effectively lead their employees so that employees' performance may improve. A better work environment is also found essential for a better version of the employees.

### 2.3 Healthy environment

The work environment tends to stimulate employees' performance and growth in the firms. Ahakwa et al. (2021a) investigated the impact of organizational learning, job autonomy, and work environment on employees' organizational commitment related to the government sector of Ghana. A random sampling technique was used to collect data from 330 employees belonging to five different districts of the Ghana region. PLS-SEM is used for the analysis of data. It is instituted that organizational learning has the highest impact on organizational commitment among all the three variables.

Schwatka et al. (2020) examined the impact of a healthy environment, occupational safety, and behaviors on the motivational process of employees in small businesses. External motives (intrinsic, extrinsic, and identified) played the role of mediation between the variables. Self-determination theory is used as the base of this empirical study. Cross-sectional data of 1052 employees were taken from 36 different organizations. Almost 53% of respondents belonged to the services sector. Results show that all three dimensions of external motive, i.e., extrinsic, intrinsic, and identified, significantly impact employees' motivational process through a healthy and safe environment. Results suggest that the businesses must focus on a health and safety climate to engage employees.

Another study related to the work environment by Muchtar (2017) investigated the impact of work environment and motivation on employees' performance at PGRI University Tuban. A questionnaire was used to collect data from 52 employees of the university. Regression analysis reveals that the work environment significantly impacts employees' performance and achieving the organization's goals. A better work environment is found to be necessary for improving employees' performance. To deliberate on the same issue, Massoudi and Hamdi (2017) have analyzed the impact of workplace physical and behavioral conditions on employees' performance in private banks in Iran. Research is based on qualitative data collected from 50 bank employees. The temperature of the environment,



noise, lighting, and heavy lifting are taken as physical modules of the working environment. Strong team spirit, training and development, employee productivity, and open communication are the determinants of behavioral modules of the working environment in the study. It is found that behavioral factors have a higher impact than physical factors on employees' work performance. Insulting an employee in a charming environment can never satisfy an employee to work sincerely with the firm. Managers must focus on improving the behavioral environment with the improvement of the physical environment.

A worthy contribution to the literature is made by the study of Junejo et al. (2020) that examined the factors affecting the working environment and its impact on work satisfaction in the banking sector of Karachi. Nearly 200 responses were taken for correlation analysis and regression model testing through SPSS. Physical environment, peer relations, and employee management relationships were the indicators of the working environment. The physical environment is found to be the highest influencing factor in job satisfaction. Relationship with management also has a significantly positive impact on job satisfaction. It is recommended that organizations have a conducive physical environment like privacy, safety standards, and working conditions for the employees to satisfy them.

Another study by Van de Voort et al. (2019) investigated the factors of precautionary tools of management to save the employees from mental sickness during work. An online survey was conducted amongst 3000 managers by giving them different working situations, reviewing assignments, and asking them about the mental illness of employees in Sweden. Results indicate that most mental sickness happens due to environmental stress. Managers are recommended pieces of training related to preventive managerial tools to control mental illness during work.

The study by Darayseh and Chazi (2015) examined the influencing factors of the work environment of accountants and managers, comprising 336 respondents selected from public and private Gulf Countries. Multivariate and factor analysis is applied to the data with variables like personal knowledge, job attributes, job scope, compensation, and self-development. Results provide that all the factors significantly impact maintaining the relationship between accountants and management and their job performance. The study also highlights the combination of issues like 1) accountants must focus their effective communication, benefits, and self-development, 2) companies must focus on their returns, profitability, and image; and 3) industry must focus on its growth, market good fortune and prosperity.

Another significant contribution in the WQL literature is made by Khodadiya and Rajesh (2018), who studied changing the working environment by applying sustainable and innovative CASHE programs. CASHE is an innovative program that comprises safety, medical, technical, and environment departments to make positive changes and control the working environment. A disciplined CASHE team works throughout the years by surveying at different intervals to maintain a road map to achieve the project's goals. Almost 408 CASHE projects were launched, and 74% of projects were completed in 2017 and have satisfactory results, e.g., reduction in chemical exposure, noise exposure, dust exposure, and heat stress and promoted cool air circulation in the working environment. CASHE programs are envisaged to provide everlasting awareness and improvements in the workplace.

Lohmann et al. (2019) examined the how affecting the psychological well-being of workers working in health departments of Malawi ensures their productivity and availability in a sustainable working environment. Cross-sectional data were collected from 175

health workers from 4 districts of the Malawi region. The WHO-5 index for well-being is used to calculate psychological well-being. Results from logistic and linear regression models show that 25% of the respondents show poor psychological well-being. Support from co-workers, supervision, a satisfying work environment, motivation, and reasonable remuneration is positive well-being factors. It is concluded that the shortage of health workers is directly affected by the poor well-being of the workers, and a high level of well-being can improve their work performance.

Tualeka et al. (2018) investigated the impacts of Benzene exposure and its safe concentration in the work environment at motor workshops. Usually, benzene has adverse effects on health. Gas Chromatography-Flame Ionization Detector (GC-FID) is used to measure the quantity of benzene exposure. According to standard concentration, benzene concentration is between 0.4 (minimum) to 3.9 (maximum). Still, the results show that the motor workshop has benzene concentration above limits which shows the severe impact on the workers' health. Workers can work in such an environment only for 11 years safely, and after that duration, workers may face different health problems due to high benzene exposure.

Kaur (2016) examined how and why both the organizations and employees strive together to improve quality of life. Findings of the study reveal that career growth, compensation policy and benefit, transportation, family life, and HCW influence the QWL significantly. Better and improved human resource practices are expected to inspire the employees to become more productive by relishing work simultaneously, and to build up an efficient and effective utilization of human resources for the firm.

## 2.4 Hypotheses Development

Based on the review of empirical studies mentioned above, the following hypotheses were developed and tested in this empirical study:

**H1:** Safety at work significantly impacts the textile firms' performance.

**H2:** Health practices at work stimulate textile firms' performance to a greater extent.

**H3:** Environmental practices tend to influence textile firms' performance in Pakistan.

## 3 Research Methodology

This study focuses on safety and HCW in the textile sector in Pakistan employing the SEM technique to test the hypotheses formulated for empirical testing.

### 3.1 Sampling and data collection

A structured questionnaire was adapted from those employed by Malik et al. (2011), and Awan et al. (2018) to explore the determinants of textile firms' performance in five major industrial zones of Pakistan. Each of the independent variables, included in the questionnaire, contained six measurement items; and each of the items was evaluated through a five-point Likert scale starting from 1= strongly disagree to 5=strongly agree. The questionnaires were delivered in-person to a total of 504 respondents working in textile firms in Pakistan. All in all, 413 filled questionnaires were collected back, as 91 of the respondents did not either respond or failed to comply with the survey requirements. Out of the

413 filled questionnaires, 31 were not correctly filled and were excluded from the analysis. Therefore, the remaining 382 questionnaires, with a response rate of 76% ( $382/504=75.7$ ) were used for the analysis.

### **3.2 Instruments and measures**

The questionnaire was grouped into five specific sections. Each section included six questions in English and then translated into the Urdu language independently by experts to resolve any discrepancies, and ethical issues involved. A pilot study was performed as a check for the feasibility of the questions in the survey. The results were evaluated and appropriate corrections were incorporated to replace the ambiguous questions finally, and the survey instrument was finalized for subsequent data collection.

### **3.3 Validity, internal consistency, and reliability**

Internal consistency and validity were checked to validate the inclusion of study variables. The internal consistency was tested through the assessment of reliability measures of items involved in respect of all independent variables and was found satisfactory. Likewise, the values of correlations for all pairs of measurement items for these variables were calculated. An inspection of the inter-item correlation matrix demonstrates that all correlations have moderate magnitude, confirming that measurement items for different independent variables are not correlated in a tricky way.

The research tool was validated by employing the standard exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The SEM technique was employed under the proposed research framework with the three QWL factors, namely safety at work, health practices, and work environment practices as the independent variables and firm performance as depicted in figure 2 and listed hereunder:

#### **A. Dependent construct**

1. Textile firms' performance

#### **B. Independent constructs**

##### **1. Safety**

- 1.1. Annual safety plan
- 1.2. Provides PPEs (personal protective equipment) including safety gloves, clothes, face masks, gloves)
- 1.3. Proves safety training to laborers

##### **2. Health**

- 2.1. Rest period
- 2.2. Flexible working hours
- 2.3. Smoke-free policies

##### **3. Environment**

- 3.1. Drinking water facilities
- 3.2. First aid and emergency facilities
- 3.3. Sanitary facilities

3.4. facilities for disposal of waste and dust

3.5. ventilation and air circulation facilities

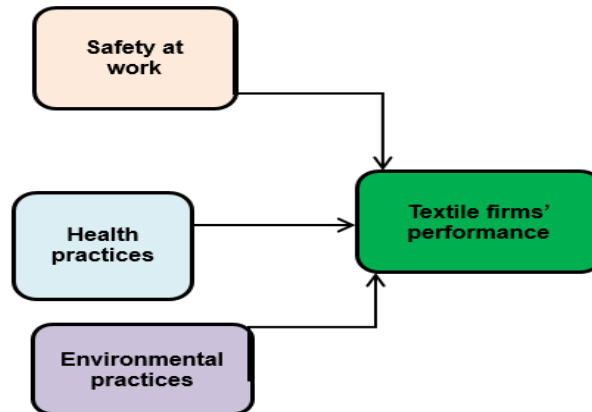


Figure 2: Research Framework of Study

## 4 Analysis and Discussion of Results

To accomplish the data analysis, construct validity was established through both the convergent and discriminant analyses. The measures of kurtosis and skewness were analyzed to check whether the distribution of data was normal. The descriptive statistics were sought to determine the most satisfactory constructs representing variables of the underlying theme of the research. Textile firms' performance was estimated about the safety at work, health, and environmental practices using the SEM technique to test for the hypotheses. These hypotheses are considered accepted or rejected based on p-values.

Table 1: SEM Results-Regression Coefficients

Hypotheses	Paths	Standardized estimate	P-Value	Results
H1	Safety at work → Textile firms' performance	0.582*	0.003	Supported
H2	Health practices → Textile firms' performance	0.623*	0.026	Supported
H3	Environmental practices → Textile firms' performance	0.789**	0	Supported

Note: \*\* and \* indicate the levels of significance at 1% and 5% respectively.

The SEM results presented in Table-1 below exhibit the standardized estimates at different p-values. For hypothesis 1, the safety at work shows the standardized estimated value of 0.582 with a  $p < 0.05$ , which discloses that safety at work significantly impacts textile firms' performance. Thus, our results support the study hypothesis, as well as the various findings reported in the studies by Malik et al. (2011), Kaynak et al. (2016), Vaishali et al. (2017), Zavadskas et al. (2017), Mora et al.(2020), Schwatka et al. (2020), and Yang et al. (2021). This finding has valuable insight into the way that the measures that ensure safety at work for the workers contribute to firm performance as the protection regime enhances workers' confidence in firms' operations, and thereby contributes to strengthening both image and performance of the firms.

Our analysis suggests that quality work practices such as better risk management, health rules, and safety procedures, adequate organizational safety support, and training exert a positive effect on the overall organizational commitment. It can be safely argued that adopting the standard operating procedures (SOPs) based on a healthy industrial and organizational environment, and safety support measures could decrease the work alienation. Finally, the safety procedures and risk management practices based on safety, and health rules, and organizational safety support could have indirect effects on the job performance of the employees.

In the case of Hypothesis 2, health practices tend to expose a significant value of standardized estimate of 0.623 and the  $p < 0.05$  (5% significance level). This output reaffirms that the appropriate health practices are a vital determinant of, and a significant contributor to, the textile firms' performance. These results tend to validate our second hypothesis and are consistent with those reported by Malik et al. (2011), Kaynak et al. (2016), Vaishali et al. (2017), Zavadskas et al. (2017), Khalil et al. (2020), Mora et al.(2020), and Schwatka et al. (2020).

Regarding the last hypothesis, environmental practices have unveiled the highest impact on Textile firms' performance with a standardized estimate value of 0.789 at a 1% significance level. These results tend to substantiate the findings by Massoudi and Hamdi (2017), Muchtar (2017), Mora et al.(2020), and Bjärntoft et al. (2020) in the context of the effect of environmental practices on textile firms' performance.

## 5 Conclusions

The present study analyzes the impact of health, environment, and safety-based industrial practices on firm performance in the sampled textile sector. Results of the survey confirm that explanatory constructs, i.e., safety, health practices, and quality work environment, do exert a significant impact on the performance of the respondent firms. Furthermore, the results of the rest study also allude to the fact that improved QWL and related practices among textile firms are beneficial both for the firms' management and workers.

### 5.1 Managerial and Policy Implications

The study alludes to some managerial and policy implications as well. The safety of the workers can be ensured by designing and implementing the annual safety plans, safety training, and using protective equipment and instruments. When workers rely on a quality environment due to safety and health practices, they might feel secure and motivated

and perform better to achieve organizational goals. Health practices also appear to impact the performance of the sampled firms positively. The provisions like rest hours during working vis-à-vis flexible working hours can stimulate workers' productivity according to their abilities. Likewise, providing a smoke-free environment helps workers work better in a healthy environment. Workers tend to perform their assigned tasks by putting their best efforts for firms' optimal benefits. Environmental practices were found to be the factor with the highest impact on firms' performance. The provision of basic environmental facilities like clean drinking water at the workplace, air and ventilation facilities, first aid amenities, disposal of water and dust, and sanitary services can boost workers' contribution to firms' productivity. It is proposed that textile firms' managers improve health conditions, safety, and environmental practices to improve their performance.

Furthermore, the firms need to intensify the organizational learning of employees through workshops, seminars, and training sessions from time to time. The work environment is found to be the second-highest impacting construct. Relaxation to employees and green environment offerings can also enhance the charm of the work environment. Organizational culture and work layout can also play a critical role in sustaining a healthy work environment. All in all, our study findings can guide both the managers and decision-makers in directing their firms in contributing towards achieving the SDGs and a better and sustainable future for all stakeholders.

Many workers and employees work in the most important industrial sector that plays a highly remarkable role in the country's economic development by contributing their skills and knowledge. Efforts need to be made in transforming their workplace and overall physical environment proactively. A purposeful combination of well-designed QWL initiatives will invariably augment their job satisfaction and sectoral output. It will result in higher levels of employees' motivation to perform in a superior fashion leading their organizations to better and sustainable prospects by yielding higher expected outcomes. In this regard, the state authorities and the Ministry of Industries and Manpower ought to play their due role to ensure QWL management.

## 5.2 Limitations with an agenda for the future

On a positive note, the present study provides valuable intuitions and implications on the contribution of healthy, safe, and better environmental practices toward the sustainable performance of textile firms in Pakistan. However, our results from the analysis depend upon those who responded to the questionnaire leading to an issue of generalizability. If this process is simulated across the diverse industries and that too in multiple countries, and preferably with a longitudinal research design, it is expected to overcome the issue of generalizability, with much better, deeper, and extended acumens of the problem under consideration. However, this could be a desideratum for future research.

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