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OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE IN HIGH-RISE BUILDING PROJECTS IN PAKISTAN: A SYSTEMATIC LITERATURE REVIEW

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Review Paper

Abstract: *The building industry contributed an impressive share in Pakistan's growth sector, where the construction industry contributes almost 2.74% of the GDP of Pakistan. In most metropolitan cities, the trend of building multi-story structures is at increase. However, this construction industry is a prominent accident-prone industry where laborers generally work in an unsafe environment. These projects suffer from fatal and non-fatal accidents as labor health and security are not a prime aim in the construction industry despite all employees still dealing with safety issues. This research examines the Occupational safety and health (OSH) performance in High-rise building projects in Pakistan. This review focuses on adopting qualitative approaches, using the comprehensive literature approach for seeking current practice in health and safety and OHS laws in Pakistan's building industry. Finally, it proposes a realistic strategy for developing a safe environment at workplaces. Research indicates that Pakistan's construction sector should consider workers' safety as a priority, update and enforce safety laws at the workplace to enrich OHS conditions in the Pakistani construction sector.*

Keywords: *building industry, accident prevention, safety culture, fall protection system, Pakistan engineering council*

1. Introduction

Pakistan is considered one of the underdeveloped countries that have recently undergone instant development in building activities throughout the past decade, with almost 3 million laborers working in the building industry. However, building industry employees constitute 7.6% of the total workforce, whereas Construction

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fatal and non-fatal accidents account for 17.3% of the entire crew (Pakistan Bureau of Statistics, 2018). Even with these frightening figures, few or no strenuous efforts are expended by government authorities or private agencies to improve Pakistani construction workers' safety conditions (Raheem and Hinze, 2012). Similarly, the majority of the opposing under-developing countries, around numerous hurdles and threats that Pakistan is experiencing to elevate and execute legislative system in the building sector. The existing safety acts in Pakistan are not exclusive to the building sector. They are accomplished by The Factories Act of 1934, the Workmen's Compensation Act of 1923, and the Minimum Wage Ordinance of 1961. These laws mainly deal with the work-related safety and health complications of industrial personnel.

Moreover, the health and safety clauses are generally made as part of contract documents in the Pakistan building industry. Still, they are commonly not imposed in reality because of carelessness and illiteracy amongst the workforces for their privileges, ensuing in inferior safety execution (Zahoor et al. 2016. Pakistan Bureau of Statistics (2018) has reported that about 36.6 % 36.7% of the whole manpower is utilized in the service sector (which includes the construction sector) (Figure. 1a), the construction sector of Pakistan is positioned third amongst the entire economic sectors and 1st amongst the service sectors relative to the share of reported occupational injuries/diseases (Figure. 1b). the governing authority is generally exhausted in executing the laws efficiently in underdeveloped countries like Pakistan.

Work dangers are not identified and either observed with not as much hazardous (Larcher and Sohail, 1999). Most underdeveloped countries have executed several safety regulating systems to minimize the frequency of accidents. The Governing organizations like OSHA in the USA and Hong Kong labor department are persistently endeavoring to attain 0 % of causality rate (Choudhry et al. 2009). Likewise, several safety encouragement plans are often publicized to lessen the frequency of accidents (Choudhry et al. 2008). In contrast, safety is not much properly considered in under-developing countries, such as Pakistan. Accident statistics are neither maintained nor regularly reported to the Government department (Raheem and Issa, 2016). Safety rules barely exist, the regulatory authority is mostly ineffective, and work hazards are not assessed accurately (Ali, 2006). The Pakistan Engineering Council (PEC), which is that the principal controlling agency for Construction in Pakistan, has not set detailed guidelines and safety regulations for the industry. Moreover, a major difference is observed between big and small contractors against their safety performance. Only the large firms have safety policies, conduct safety training, and appoint safety staff on their job sites (Raheem and Hinze, 2013).

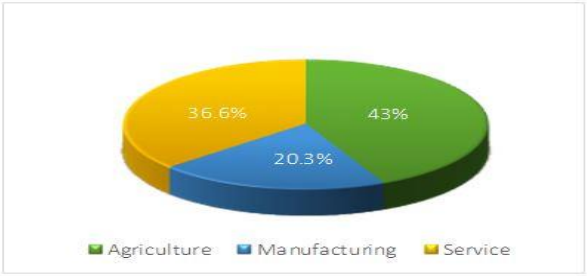

Figure 1a. Distribution of total labor force

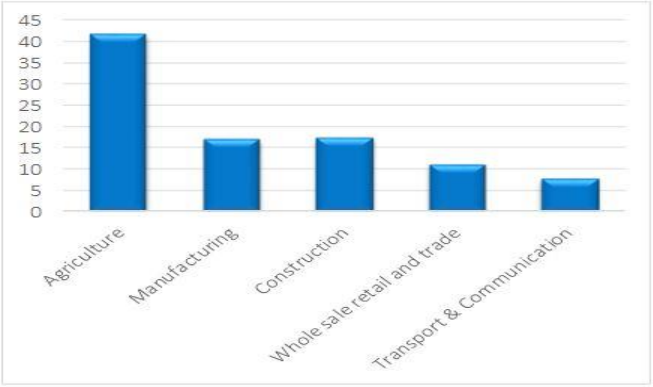

Figure 1b. Accidents relative to reported injuries/diseases

The construction workers usually face serious threats and safety issues while building high-rise structures. Building laborers are usually more subjected to falling, plant movement, heavy machinery, electroshock, and loud noises. The factors time, cost, and quality are often the key factors perceived to be ahead of safety. Health problems are still considered subordinate and take a back seat on the building site. Many organizations have not developed robust accident management plans but instead focusing on optimizing income. (Choudhry et al. 2008). Thus, laborers are more liable to face numerous hazards, such as harsh weather conditions and safety problems at high altitudes (dropping from elevation, colliding with items at workplace). These may be the reason for serious work-related wounds among building workers throughout the globe. Most building incidents happened due to a fall from a height, accompanied by electrocution and shifting activities (Zahoor et al. 2016). Lack of personal protective equipment (PPE), ineffective training, unrealistic construction time, and missing appropriate anchoring points are the main causes of falls from height at construction sites (Choudhry et al., 2014). In the last seven years, no noteworthy reduction in injury rate has been detected, as the injury rate remained nearly constant at over 14% (Pakistan Bureau of Statistics, 2018). Most occupational incidents in the Pakistani building industry are due to falls from a height, accompanied by uplifting activity, electric shocks, and hit by objects (Choudhry et al. 2014). However, building projects are still suffering from casualties even with the following safety criteria, mostly due to falling from height and electrocution (Choudhry et al. 2014). Whereas falling from height is the main cause of incidents that happen in the construction of tall buildings (Hassan, 2012). The main causes for safety non-compliance are generally summarized as; desire for earning more profit, misinterpretation that putting investment on safety raises the project budget, absence of a controlling authority, labors' unawareness, poor governing system, lack of safety training, and shortage of safety equipment's, political influence, and meeting deadlines (Farooqui, 2012).

2. Literature review

This study adopted a qualitative approach to analyze workplace safety and health performance in high-rise construction in Pakistan. It exposes the facts without

tossing the information away. This study focused on a thorough analysis of the literature relating to workplace protection and health in high-scale Pakistan and their potential applications to improve occupational health and safety standards in the Pakistani buildings industry. It was intended to sum up the latest occupational safety and health efficiency of high-rise buildings in Pakistan and to review prevailing OHS laws and regulations and their application in the sector.

For a paper retrieval of the OHS performance in Pakistan, a systemic method involving three steps, as seen in Figure 2, has been adopted. A systematic desktop search was performed in Scopus under the 'article title/abstract/keyword' search area. The keywords for the search were safety culture, safety practices, construction safety, OHS, Pakistan. Their title/abstract /keyword section was deliberately picked to be for further review with these particular words. Other databases were also explored to access the relevant articles, such as Google, Scholar Science Direct, EBSCO, Scopus, Web of Science, and Google. In short, the best source for looking for the conference papers and proceedings was Google. A further step was to search the proceedings using the same search engines for 14 Global OSH conferences. For the next step, profiles were investigated in Research Gate, Academia, and Google Scholar to find out scholars who are intensively interested in OHS research in Pakistan. Consequently, the Snowball technique was eventually used for the finding of the corresponding articles by reviewing the reference portion of all the articles found. The papers that could not be downloaded were accessed via e-mail from the researchers.

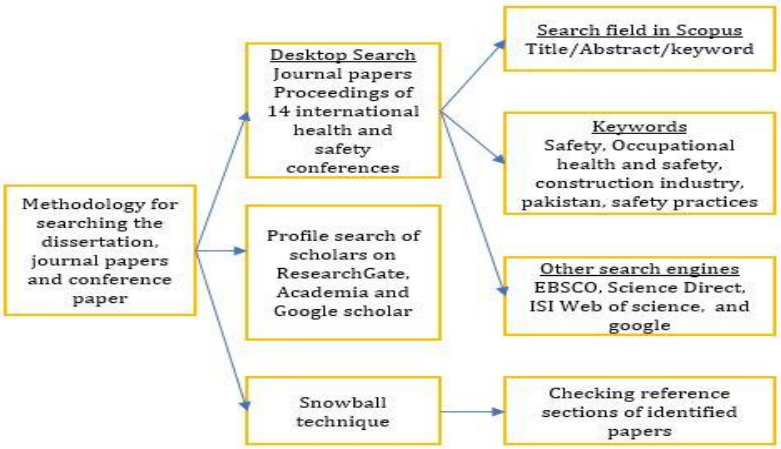

Figure 2. Research methodology

2.1. Nature of the Construction Industry in Pakistan

Underdeveloped countries should focus on executing safety, health, and environmental management systems in the building industry to carry projects deprived of injuries and scale back worksite dangers. In developing countries, like Pakistan, the safety regulation hardly exists; and most of the laws are not suitable for building industry, and those laws are unsatisfactory, inefficient, or outdated. Generally, the administrative body is weak in imposing safety laws efficiently, and site hazards are either not evaluated at all or observed that these job risks are tolerable to worker safety (Ali, 2006). Various building firms across the globe are

executing health, safety, and environmental management systems to prevent damages, eradicate illness, and offer a harmless work atmosphere on building projects. On the other hand, there is no legislative safety system in Pakistan to impose safety in the building industry without having any particular governing authority for OHS management, likewise OSHA in the USA (Choudhry et al. 2008). As the only regulatory body, the Pakistan Engineering Council (PEC) has yet to enforce health standards to be followed by construction stakeholders (Farooqui et al., 2007). However, PEC doesn't have the power and administrative authority to establish and enforce safety-related legislation. The majority of clients seek fast speed and high efficiency of building work in the region at the lowest feasible expense, and the project budgets do not specifically contain protection funds (Farooqui, 2012). The health efficiency of large and small contractors also varies considerably. Many of the major firms listed with the PEC in category C-A have detailed safety policies that offer some form of training to staff that retain safety personnel in their workplaces. Contrary to that, small firms usually do not have protection on their agenda, and there are dangerous environments on many building sites, and often injuries and fatalities occur to staff (Choudhry et al. 2008a). However, at different work sites of contractors, training programs for the safety of laborers haven't been introduced yet, no safety-related training conducted for entirely new workers, work-related risks never identified, and never called and conducted any safety meetings. Furthermore, the absence of immediate availability of medical services, inferior housekeeping, and unhygienic conditions tend to exist on isolated projects. Although safety clauses are included in contract documents, they are not strictly implemented. Likewise, construction firms are mostly failed to prescribe these clauses due to the non-existence of the regulatory authorities. PEC also organizes safety education seminars and obligatory short courses on continuing professional development (CPD), which are only available for engineers. However, no instruction for construction managers and staff are offered (Choudhry and Zahoor, 2016). The kind of work conducted at worksites in Pakistan are labor-intensive and relies entirely on the mostly nonprofessional and non-qualified workers, which usually poses an enormous risk of special damages (Farooqui et al. 2007a). Underdeveloped countries such as Pakistan are witnessing serious potential accidents due to intense work and rely heavily on professional and unskilled staff from diverse educational backgrounds. Similarly, the bulk of accidents in the Pakistani building industry are attributed to falls from height and a few more to lifts, electric shocks, and Safety training is the most neglected aspect in the construction industry. (Choudhry and Zahoor, 2016). Generally, laborers and managers have different opinions about accident reporting mechanisms. As explained by Masood et al. (2012), any accident that happened at the site is reported from the perspective of managers. Still, laborers possess a different belief and commonly not in agreement with the managers. Likewise, stakeholders are only concerned with productivity, while safety is not given much preference. Significant health and safety disparities among developing and under-developed nations contain inexistence, inadequate compliance, weak risk management, and lack of OHS awareness programs and safety regulations (Zahoor et al., 2017). This worsening condition contributes to serious worksite injuries and a significant shortage of site staff, reduced work morale, delays in building progress, and disputes between stakeholders (Haseeb et al. 2011). Building work is the country's riskiest task because it entails wounding and death on sites in Pakistan.

2.2. Status of Occupational Safety in the construction industry

In underdeveloped nations, health at work remains overlooked due to overlapping social, economic, and political problems. Following worldwide progress on OS&H problems, around 2.3 million deaths from workplace injuries and work-related disease are reported, 317 million suffer serious disabilities, and 160 million become sick, most of whom in less developing countries belong to rural regions (Azhar et al. 2015). Employees in less-developed nations have often had a large chance of injury/disease in jobs because of bad working standards and social security. In remote regions in less developed nations, the condition is much worse because of insufficient health care services. For less-developed nations, workplace injuries/diseases are a major expense to the national social insurance program (Rundmo and Hale, 2003). due to poor health safety infrastructure. Work accidents are the primary causes of an economic downturn (Brown, 2003). The ILO reports that the overall burden of work accidents and illnesses constitutes 4 percent of the national GDP on average (International Labor Organization, 2009). Proper social insurance programs are not integrated into less-developed countries, especially rural ones, and there is a reality of constraints and low-quality information; hence a standard data study is useful in assessing the efficiency of the country's occupational health safety systems (Smith, 2001). Moreover, in the least developed countries where workers are involved in dangerous jobs, mainly in agriculture, construction, fishing, and mining, work-related damage and death are greater (International Labor Organization, 2013). Social safety at low levels faces a high risk for adverse occupational exposure. According to the Pakistan Economic Survey 2013-14, Pakistan is the 10th largest country in the world in terms of the labor force, and its rural population accounts for 67.5% of the total population involved in agriculture activities (Pakistan Bureau of Statistics, 2014). Workers' health and safety in Pakistan are miserable due to several causes, for instance, inadequate healthcare services, Lack of relevant OHS regulations, and uneducated workers. Evidently, in Pakistan, no institutional program is in place to monitor incidents and causes associated with jobs. There is also a lack of obtainable statistics, meaning that most accidents are not reported to the Labor Department. OHS is not the country's highest priority because of a shortage of funding and the lack of technical skills. At the provincial level, the Saeed Ahmed Awan Centre for the development of Working Conditions & Environment and the Directorate General of Labor Welfare of Punjab province is responsible for offering medical and technical expertise for employee safety. Punjab recently revealed the first labor policy (Dawn News, 2015), and Baluchistan established an agreement on labor law and industrial reform (International Labor Organization, 2015). In addition, since the independence of Pakistan in 1947, the ILO has been collaborating with the government of Pakistan to resolve issues at work, workers' rights, and raise labor conditions. Pakistan has signed 36 ILO conventions, with eight of them were main agreements. Since thousands of employees are subjected daily to hazardous chemical compounds, Pakistan has a high prevalence of workplace diseases and injuries. Most workers are not aware of the distinction between preventive measures during their jobs. The majority of the workforce is not trained to cope with the threats presented by manufacturing and production processes. There are no clear safety laws for various industries throughout the country to cope with employees' health and security problems. The nation needs essential facilities and professional staff to provide OHS workforce services. A

significant number of employees would also be in danger if possible; efforts to strengthen the OSH management are not made (Ahasan, 2001).

2.3. Causes and Effects of Occupational Accidents in the Construction Industry

Every year 3.7% of the labor in Pakistan undergo occupational injuries/diseases that result in the loss of working time (Pakistan Bureau of Statistics, 2008). Although its literacy rate of only 57.7 percent is reasonably acceptable, Pakistan is considered a country that lacks a security culture, mainly attributed to a lack of effective legislation (Farooqui, 2012). Most building industry injuries are caused by height dropping (Zahoor et al. 2016). The key causes of such incidents involve failure for fall security and sufficient anchorages on construction sites, insufficient preparation, excessive building time, and health ignorance among the workers (Choudhry et al., 2014). Drop from the top is the main cause of injuries, whilst other causes include electrical action, trapped between machines and objects (Nawaz et al. 2013). The ignored safety measures that trigger accidents in high-rise buildings are recognized as having no ear defenders, no boots, and no face masks if needed (Farooqui et al. 2008). The lack of coordination and comport ability, safety knowledge, consumer engagement, and health legislation are responsible for safety non-compliance (Khan, 2013). Significant reasons for safety violation are summed up: misunderstanding of the fact that safety improvements raise the costs of the project, ineffective regulatory bodies, political interference, unreasonable timelines, overtime, health ignorance, and lack of collaboration among employees (Raheem et al. 2011). Untrained employees and a higher unemployment rate are potential sources of injuries. These incidents lead to higher building costs, such as charging for the jobs of extra workers, temporary stoppages, and delays in time (Jafri, 2012). Moreover, accidents have adverse impacts on the morality of employees.

2.4. Safety Culture in the Construction industry of Pakistan

Safety culture (SC) is well-defined as the safety expectations, standards, and customs shared by the followers of an industry. It can be explicated that these fundamental values and standards that distress the performance of individuals in industries. Present pieces of training in management establishes that there is an intensifying acknowledgment of the effect of SC on variation execution accomplishment. For the disintegrated existence of the regulatory atmosphere and the erraticism of safety perception, the construction industry in Pakistan hasn't been able to develop a sound safety culture (Raheem et al., 2012). Though stakeholders/owners in the building industry in Pakistan are generally aware of protection objectives and their value to the sector, they do not have engagement, collaboration, experience, and knowledge of instruments to enforce the safety culture in their projects (Farooqui et al. 2008). Formal safety management practices between stakeholders/owners are rare, and thus incidents leading to loss of production, delays in development, and cost overruns occur in projects. It has also been concluded that, because of a lack of dedication and institutional processes, the managers, partners, and investors in the Pakistan building industry are not able enough to sustain a secure project. The key challenges encountered by contractors in introducing and enhancing protection are – in descending order of importance – the lack of the following: staff collaboration and behavior, experience and competence with protection management strategies, safety

understanding and knowledge, owner involvement, and a safety regulatory system (Farooqui et al. 2008).

2.5. OHS training institutes in Pakistan

The Saeed Ahmed Awan Centre for Improvement of Working Conditions and Environment' in Lahore city of Punjab province; In Pakistan, it is a leading center offering professional services in the areas of OHS and the workplace environment founded by the Labour & Human Resource Department, Government of the Punjab, Pakistan. Several private institutes provide OHS training facilities on a commercial basis in Pakistan:

1. Pakistan Institute of Management (PIM) has established its offices in Karachi, Lahore, Islamabad, and Quetta. It is awarding diploma certificates of OSH after four months of training.

2. Pakistan Safety Institute (PSI) is a Karachi-based commercial organization providing training, auditing, and consulting services in the field of health and safety, fire safety, and construction safety.

3. Occupational Safety and Loss Prevention (OSALP) is a Lahore-based commercial organization, providing training in the fields of quality assurance, health, safety, security, and environment.

4. Safety Trends International (STI) is a Karachi-based private institute providing NEBOSH and IOSH training.

5. DESCON, a well renowned Lahore and Karachi based company, is providing OSH training to its employees at its DESCON Technical Institute (DTI). They also provide training on a commercial basis.

6. Occupational Training Institute (OTI) is based in Lahore and providing OSH training on a commercial basis.

7. Vivid Institute of Occupational Safety and Health (VIOSH) has its training offices in eight cities of Pakistan. It provides OSH training courses like OSHA, IOSH, NEBOSH, particularly in the construction and petroleum sectors.

8. Horizon Institute of Occupational Safety and Health (HIOSH) has established its branches in Lahore, Rawalpindi, Attock and Peshawar. It is providing training for IOSH and NEBOSH certifications.

9. Center of Risk, Safety, Health and Environment (CORE) is a Karachi based institute, providing training for NEBOSH International General Certification and for IOSH Managing Safely and IOSH Working Safely certifications.

In fact, as explained above, a variety of private companies offer OHS trainings on a commercial basis. This is essential to remember that construction employees are not strictly required to undergo any health training at workplaces because they are allowed to work on building projects without any health certification. Therefore, only construction workers who prepare for an overseas job are involved in receiving a safety training program.

3. Development of construction health and safety guidelines

Presently, Pakistan construction industry has not had any proper Occupational health and safety laws. Even though several OHS laws such as Workmen's Compensation Act 1923, Factories Act 1934, and Minimum Wage Ordinance, 1961 are established, they were basically applicable for over-all industries and do not specifically fulfil the criteria of safety compliance in the building industry. Therefore, a prominent need to modify the Factories Act 1934 or to generate completely advance safety legislation. Moreover, to improve the construction safety culture in the construction industry, current safety regulations, and safety performance, the Higher Education Commission of Pakistan collaborated with Department of State, USA under Pakistan-US Science and Technology Cooperation Program funded a capacity building project. The purpose of this project was to set up a knowledge-based Centre. The Construction Management and Safety Research Centre (CMSRC) was instituted at National University of Sciences and Technology (NUST) in 2012 to step up and encourage safety research in Construction, training and education to enrich safety rules and policies in building industry by engaging academia, public organizations, industry, regulatory agencies, and the regulatory bodies. The project team has submitted a request to the Ministry of Education, Training and Standards for Higher Education to set up the "Pakistan Occupational Safety and Health Agency (POSHA)". One of the functions of this department is to gather data on health and safety results on an annual basis. The plan is currently being reviewed by the appropriate department (Azhar et al. 2012).

4. Construction health and safety education and training

For the achievement of occupational health and safety programmes, successful OHS training is necessary as it enhances behavioral skills, associated information, and or attitudes and stimulates accident forecasting, particularly for new employees. To increase workplace OHS efficiency both at the level of the worker and the organization, management should develop a regular, rigorous health and safety curriculum for new workers and provide an instructor for them (Vredenburgh, 2002). Memon et al. (2013) suggest that management support, teamwork, effective supervision, safety education and training, regular safety meetings, effective communication, and setting realistic goals can effectively enhance the safety performance. Hassan (2012) suggests that the safety situation can be improved by the effective enforcement of OHS laws, incorporating safety credit points in the contractors' licensing, appointing safety inspectors for site monitoring, allocating sufficient safety budget, providing personal protective equipment (PPE), and effective safety training. While conducting surveys with three different questionnaires for the managers, workers and national culture, Mohamed et al. (2009) established a link between national culture and safety behavior (Mohamed et al. 2009). In addition, it has been suggested to use wireless sensors for intelligent real-time monitoring of workers in the confined spaces (Riaz et al. 2014). Raheem and Issa (2016) emphasize to incorporate more specific safety clauses in the contract documents and include safety plan as a mandatory part of the bidding process. They suggest starting with the safety induction training for all the workers, supervisors and managerial staff.

4.1. Accident reporting and investigation

Through background facts, injuries are caused by horrific incidents: machinery failures, unsafe working techniques, and poor maintenance. Updating people about such unpleasant incident would be useful in identifying reasons for minimizing the possibility of such incidence. To accomplish this aim, almost all misses, fatal and non-fatal accidents must be documented, it does not matter how minor they might appear. The accidents reporting phenomenon varies from company to company, as the procedures vary, so all information would be provided to administrators quickly so that the Incidents could be further investigated (Fahad et al. 2019). The effective method to track accidents is by a particular method of reporting. The method must provide a well-defined summary of incident, persons and work included, damages received, healthcare services given, and of the evidence provided if there is also, if possible, photos of the concerned region should also be added. Consequently, at every building site, it should always be demanded and assessed to maintain an injury record at the site where all forms of minor accidents including such cuts, damaging incidents such as attributing disabilities and fatalities has to be included and evaluated by the safety official (Fahad et al. 2019). Fortunately, the reporting of an injury is not sufficient to mitigate the chances of recurrence, and it must be determined as quickly as possible after an accident has been reported. The investigation process should be carefully examined to include all facets and concerns that have arisen in order to determine the root causes of incidents.

4.2. Temporary platform structure

Scaffolding is a temporary framework used in the design, renovation, and reconstruction of homes, bridges, and all other manmade structures to sustain a work team and materials. Scaffolding is a vital trade in the Construction of buildings by offering platforms that allow workers to maintain their job at a high altitude. Drop hazards are the leading cause of workplace accidents, responsible for almost half a year of all construction accidents. OSHA, (2002) reports that about 65 percent of contractors work on scaffolds each year. This could lead to hazardous conditions for construction staff and projects around the world without knowledge of the dangers of scaffolding. Get professionally qualified to recognize electrocution, fall, and dropping objects and techniques for treating these hazards when using a scaffold. The proper use of the scaffold must also be included in the training, how to handle materials, and the load capacity of the scaffold. Once you can use the scaffold, make sure that the qualified individual inspects the scaffold so that it is in good working order. When working on scaffolds, always use a sturdy, durable, non-skid work pair of boots and lanyard. If the scaffold is used inappropriately, please inform the supervisor straight away. Connect the machine to a secure level, which does not permit more than six feet of free fall before stopping (OSHA, 2002).

4.3. Personal protective equipment (PPE)

It is very necessary to wear PPE for workplace safety and for further various security reasons. It is designed for the defense of the body from disruptive impacts, electric threats, heating, and chemical agents for the wearer's whereas, wearer's apparel, masks, gloves, or other devices are produced to shield the body from injury. Personal protective equipment (PPE) is needed by the Occupational Safety and Health Administration (OSHA) in the United States to mitigate worker risks and hazards

where engineering and administrative controls are inadequate to minimize such exposures to the required standard (OSHA, 2006). In addition, the building firm must define the statutory conditions for PPE in the construction sites and safety policy. The OHS manager will regularly review the needed volume of PPE on the job. OHS officials will perform routine checks for faulty PPE that are not in usage by staff. For review, replacement, and follow-up activities for the PPE, a checklist should be created. PPE used by all laborers of subcontractors must be checked and must meet the prime contractor's relevant requirements.

4.4. Fall protection system

Generally, workers would choose the fall safety systems that are more consistent with the job type. Flying objects are common at building sites as workers use power equipment or perform activities that include pressing, dragging, or prying (Keng and Razak, 2014). Then researchers like Hamid, Majid, and Singh (2008) reaffirmed that the most frequent form of the building site incident is caused by falling from a height or dropping objects. Incidents involving falling or flying objects may expose staff to minor injuries, like cuts and abrasions, and, rarely, even more, severe injuries, including concussions or blindness. More risks may be taken in accidents caused by falling items, particularly for workers who work under scaffolds or other places. In another study, the U.S. Department of Labor (DOL) reports falling as one of the main causes of traumatic workplace mortality, responsible for 8 percent of all trauma-related workplace deaths. For a fact, if a worker is 4 feet or taller, the worker would be at risk and will be secured. As a result, DOSH (2007) emphasized that fall protection equipment must be used and applied anywhere an individual would be at risk of falling by 2 meters.

5. Improving the existing regulatory infrastructure for worker health and safety

While construction activities have risen in the last decade, the Pakistani building industry is suffering largely because of the absence of a viable legislative framework due to unsafe working conditions. Owing to the delicate existence of the regulatory structure, temperamental and weak morale have become norms for the construction industry (Ali, 2006). The behavior of labor at the workplace reveals a significant challenge to the compliance of safety laws in Pakistan. Therefore, corporate control has marginal consequences, and the government pays no attention to health. Nawaz et al. (2013) recommend reformulating and implementing safety laws and by-laws, disseminating safety awareness, determining an accident reporting mechanism, and ensuring the provision of safety training as well as PPE to all the workers. In this connection, draft regulations to improve the existing health and safety legislative framework are submitted by Azhar and Choudhry (2016) to PEC for approval and implementation (Azhar and Choudhry, 2016). In order to improve safety standard in the building industry, researchers have recommended the PEC to: modify the contract documents, allocate explicit safety budget at the time of bidding, giving due weightage to safety performance in the processes of contractor licensing and renewal along with the professional credit points, and employ safety professionals on all the projects (Raheem and Hinze, 2013). In addition, the development of a database is

emphasized to record the number of injuries/fatalities against the completed and ongoing construction projects at the industry level (Sheikh and Ali, 2013).

6. Conclusion

This paper addressed problems relating to the study of workplace safety and health performance in the construction of high-rise buildings in Pakistan. Furthermore, the difference in safety culture development in western nations and strategies and methods of encouraging the health and safety of buildings is also addressed. In order to minimize the occupational risk, a comprehensive analysis of the literature indicates that safety implementation in the construction sector of Pakistan should be considered. To ensure the OHS in Pakistan's construction industry, attempts must be made by both parties (Government and Entrepreneurs) to upgrade the working environment and to minimize risks for construction workers. Building safety and health research are in the development stage in Pakistan. There are also numerous articles that have been published in the area of OHS in Pakistan. It promises that several conferences are held annually to completely recognize and upgrade conditions in the construction sector; nonetheless, it is incredibly hard to obtain online details on these conferences. This situation makes it very hard for researchers to determine and understand working environments and recommend additional changes. This article is an attempt to examine and recognize Pakistan's health and safety practices. Study results show that construction companies are hesitant to disclose occupational incident-related records, aside from not showing and reporting workplace regulations that further jeopardize worker health and safety. Therefore, the selection criteria of PEC Contractors is based exclusively on financial potential, not success in health and safety. While in its legal contracts, PEC has incorporated safety clauses, due to the lack of administrative authorization, these are not enforced. To create alertness among its staff, PEC is also arranging CPD webinars and seminars; however, training of workers is not taken into account. Consequently, the following steps are recommended to PEC to increase OHS Knowledge at construction workplaces, thus PEC must launch safety awareness campaigns; set up regulating authority; develop clients' procurement and records of bids on the allocation of safety allowances; incorporate safety credit points into the evaluation criteria of the contractors, and establish a realistic system for reporting and investigating incidents.

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