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Behavior of Workers Towards Safety in Construction Projects in the Gaza Strip

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Abstract: The construction industry is one of the largest industries in the world. It became a major industry in Palestine during the past few years. Although it contributes around 19% to GDP, it still lacks the consideration for safety of workers. Safety in construction industry is one of the major factors that affects the field and should be studied and investigated to be integrated as an inherent culture of each member of the project. Behavior of workers on job site is a reflection of the safety culture they gained. It is important to ensure that all workers on job site have safety culture. The purpose of this paper is to investigate workers behavior towards safety in construction projects in Gaza Strip. A questionnaire has been distributed to 100 workers in 10 firms in Gaza city to investigate about their behavior towards safety issues. The results indicated that workers have negative attitude towards safety. This paper showed the lack of safety means in construction sites which together with workers behaviors led to high rate of accidents and also showed the desire by workers to use safety equipments and tools was very low which contributed in the high rate of injury. In order to avoid time and cost overruns, contractors should utilize modified work programs for injured workers where they can perform productive duties without exposing them or their co-workers to further injury. It is necessary to improve safety measures by all parties of construction projects.

Keywords: *behavior, construction, injury rate, safety*

1 BACKGROUND

Construction Industry is one of the largest and most important industries in Palestine. It holds a big share of the Gross National Production and shares a large part of the Palestinian Market especially in the past few years. Although important, Construction Industry in Palestine, as other countries, directs a very small amount of its revenues towards scientific research. Barrie and Paulson (1992) indicated that accurate data is not available, but it is generally assumed that only a fraction of 1 percent of the industry's gross revenues is invested in applied research.

Safety in construction industry is one of the major factors that affects the field and should be studied and investigated to be integrated as an inherent culture of each member of the project. In the United States, accidents cost the construction industry over 8.9 billion dollars every year, (Egger and Varzavand, 1989). Injuries and illnesses are caused by exposure to hazards. Hazards include any aspect of technology or activity that produces risk. The probability of incidents is mostly dependent on the duration and frequency of exposure.

Major accidents can frequently be traced to failures in safety management systems. Even when enormous effort has gone into perfecting these systems, it seems they remain imperfect. It is largely for this reason that the concept of safety culture is now receiving widespread attention. In 1993, the Advisory Committee on the Safety of Nuclear Installations Human Factors Study Group provided the following definition for safety culture; "The safety culture of an organization is the product of individual and group values, attitudes, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety programmes." (Cited in Federal of Railroad Administration report, 2001).

In fact, definitions of safety do not end due to the inherence of safety culture to large number of industries. Uttal (1983), for example, defined it as "Shared values and beliefs that interact with organizations structures and control systems to produce behavioral norms". Turner, Pidgeon, Blockley and Toft (1989), defined it as "the set of beliefs, norms, attitudes, roles, and social and technical practices that are concerned with minimizing the exposure

of employees, managers, customers and members of the public to conditions considered dangerous or injurious”

Those definitions show the inherence of safety culture to behavior of worker. Behavior of workers on job site is a reflection of the safety culture they gained. It is important to ensure that all workers on job site have safety culture but this culture is deviated from one worker to another. In other words, knowing rules of safety and ways to avoid risks and hazards on job site is a matter of safety culture. Moreover, having no basic idea about safety and hazards on job site is a safety culture as well, but this culture is the wrong one. Behavior of workers towards safety according to their culture will be greatly reflected in their performance of projects tasks. It is known that psychological and environmental influences function as joint rather than separate determinants of behavior (Bandura, 1977).

Culture affects safety to a great extent. When a person is brought up and educated that safety is a way of success in life and a way of being alive, that person will try to be safe in everything he does and will be able to grasp any issue related to safety. Safety Culture doesn't necessarily mean a culture attained in house, but it also means a culture of a company, organization and an institution. Clearly, there is a need to reduce the cost of workers' compensation for contractors while delivering appropriate benefits to injured employees. It is a culture of many companies. There is also a clear need for developing and instituting a more equitable method for evaluating the safety performance of contractors. Hinze (1997) emphasizes that considerable discussion of the roles played by the various parties, from the workers to the president, will provide strong evidence that every party on a construction project has a stake in determining the safety performance ultimately achieved at the project level.

2 STRESS AT WORK

Over the last decade, workplaces throughout the world have experienced massive restructuring that has included downsizing, increased hours of work (e.g., 12 hour shifts, mandatory overtime), and intensification of work (increased work load and/or job duties), increased pace of work and a host of changes in technologies, work processes and management techniques. These changes, aimed at making workplaces more competitive and productive, have been associated with significant adverse health and safety impacts - repetitive strain injuries, stress, workplace violence, fatalities and other work-related injuries and illnesses.

Organizations in a number of industries have undertaken ongoing reforms aimed at leveraging improvements in safety culture to reduce occupational injuries and deaths. Many construction firms are operating under a false assumption. Most assume that coops/interns have a complete understanding of safety or are aware of most safety requirements. However, experience has shown that these students are very enthusiastic about the profession, eager to prove themselves and hence will likely work in an unsafe manner, (Diamantes & Suckarieh, 1992)

The following statements are essential to know when thinking about behavior and its effect on safety: behavior is the cause of most accidents; consequences motivate behavior; what gets measured gets done; feedback is essential to improvement; quality is built-in early in the process; conversations change organizations (US Department of Energy report, 2002). The organization sees safety as an external requirement and not as an aspect of conduct that will help the organization to succeed. At least one of these four possible errors is involved in many safety incidents: eyes not on task; mind not on task.; being in the line of fire for hazard.; losing balance and inadvertently falling into the path of the hazard.

Changing behaviors that cause performance problems or adding behaviors that will enhance performance is no more difficult than working with safety-related behaviors. In fact, reliable data collected over the past 30 years indicates the application of behavioral strategies to business performance results in sustained improvements of 20 to 40 percent minimum, (Pounds, 2001).

3 RESULTS AND DISCUSSION

Figure 1 shows the percentage of ages of workers. It is obvious that the majority of workers are youth. This is an important factor especially when training courses are discussed. It is well-known that young workers are preferred to take training courses to improve their skills and abilities in their major fields.

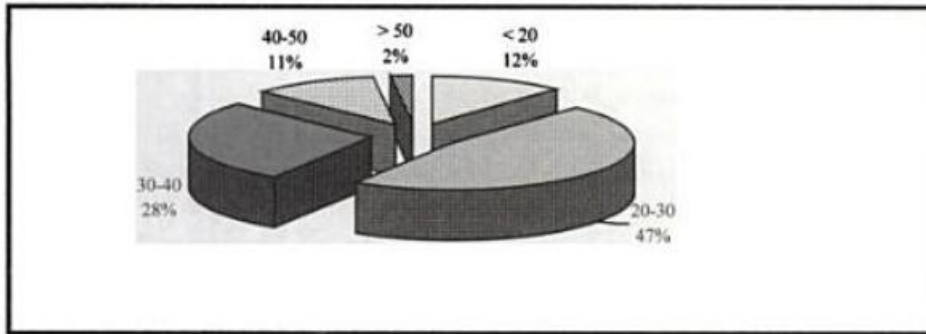


Figure 1 percentage of age of workers

Figure 2 depicts the distribution of workers in this survey. It can be noticed that most workers in Gaza are working in road pavement.

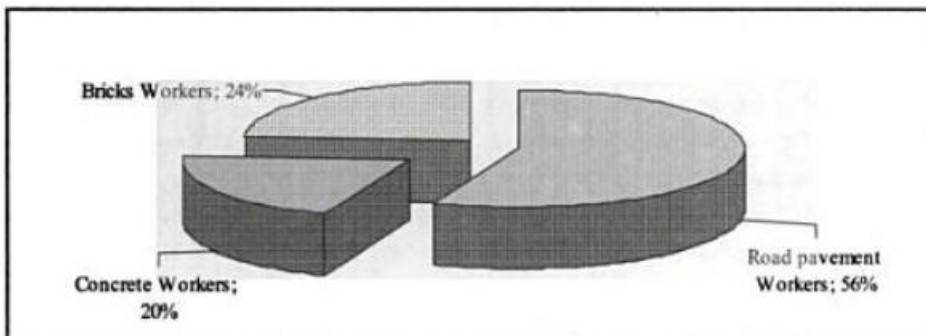


Figure 2 Field of specialty of workers.

It is noticed (Figure 3) that 67% of workers were injured whether in incident or accident which is one of the highest injury rates in construction industry. 34% of the workers mentioned that their friends were injured. This high injury rate should send signals to organizations and companies to start to review their safety performance. Safety is not a separate component of a project. On the contrary, it is an integrated component of the whole project and should not be extracted aside from the project. The safety program having the objective "Zero Accident Workplace" might seem to be hard in this situation, but it shouldn't be. If a good safety program was prepared accompanied by a strong commitment of all parties of a project beginning from the top management to workers, safety will be a trade mark of the company. It is also important to include that workers will feel safer when working with such company increasing productivity and quality.

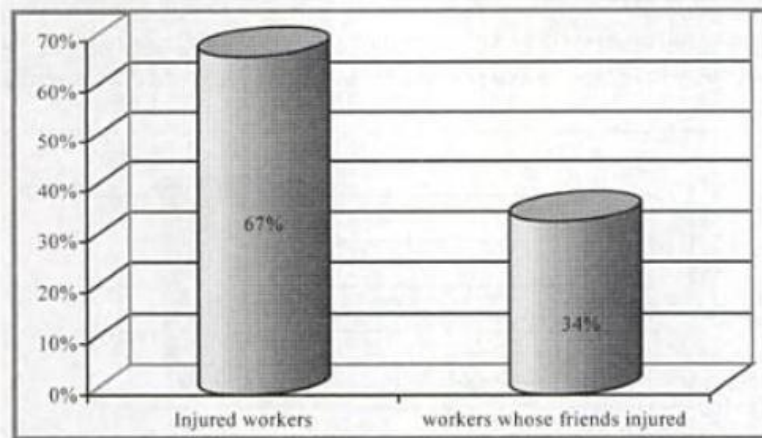


Figure 3 Percentage of injured workers.

When workers were asked about their intention to use safety gloves, shoes, belts, and helmet, the answers has shown how far the safety performance from practice is, (Figure 4). More than 50% refused to use the safety tools while more than 10% refused the idea itself. Their behavior was such enthusiastic that they would do anything except for working using the safety tools which prevent them from performing their tasks effectively according to what workers mentioned. Although there was a secret reason which is the challenging behavior of Palestinian workers. This behavior shows how much safety culture needs to be changed as soon as possible.

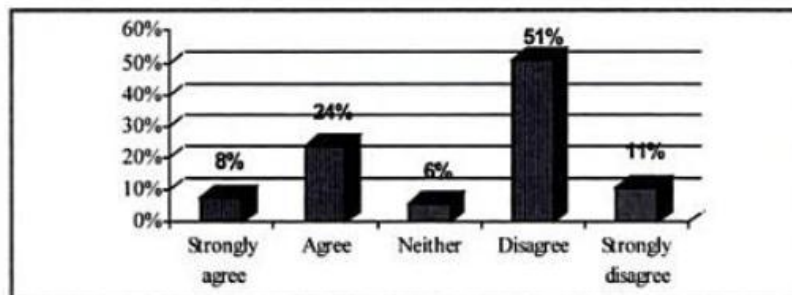


Figure 4 Desire of workers to use gloves, helmet, shoes, etc.

Changing the behavior requires also a change of culture. Safety culture has to develop to meet the required level which will make first the top management faithful towards safety and to make workers more curious about safety. Top management should be fully committed to make their workers safe and healthy as possible. Workers might not feel it easy to change their behavior because they would think that injury is an inherent characteristic of working in construction industry. This idea about construction industry should be changed completely. "Our fears become true" is a proverb fits this situation. When worker believes that injury must happen one day because he is a worker at the construction industry field, then this injury will happen certainly. Such workers might hold the title "accident prone".

Figure 5 shows the low percentage of workers who refused to perform a risk inherent task. Sometimes, it is hard for an old worker to refuse to perform a specific task thinking that it would hurt his ego. The self-esteem can lead to great hazard if not controlled. This behavior reflected from environment where the worker lives besides to the atmosphere of the workplace. It was also found that co-workers would encourage the worker to perform such risky tasks. Changing such behavior is not a myth, if the right techniques and courses were offered to overcome

such behavior. Whenever one worker is replaced by another, the difference in skill and expertise can lead to greater risks both to the new worker and to co-workers. This is another problem which leads to injury due to perform risk inherent tasks. The new worker would not be able to refuse for fear he will be accused for not being professional.

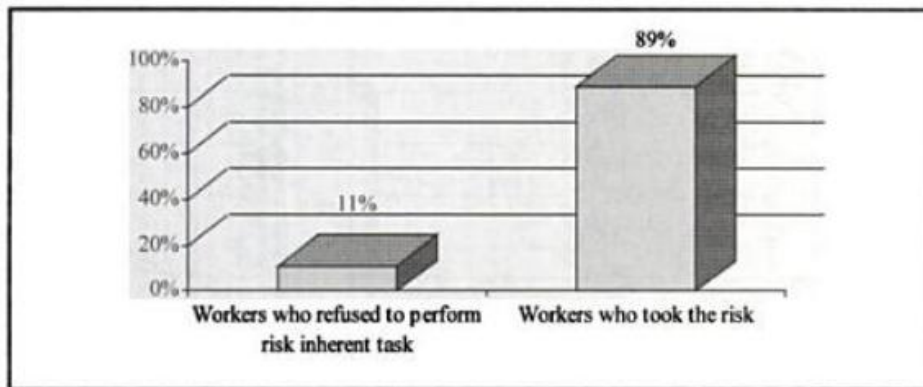


Figure 5 percentage of workers who refuse or accept performing a task that contains risk.

Few workers explained that they were rewarded for performing risky tasks in a safe manner, although the reward was moral. Positive reinforcement (motivation) of workers made workers feel great and encouraged them to continue such behaviors. This should be considered as the first step to establish the safety program that every company must have.

Positive reinforcement is one method that can be used to verify successful worker training. This is accomplished by acknowledging workers who follow the established safe work procedures. But top management should be aware that award programs with prizes for hours worked without injury can put pressure on workers not to report injuries or illnesses, reducing the effectiveness of the hazard reporting system.

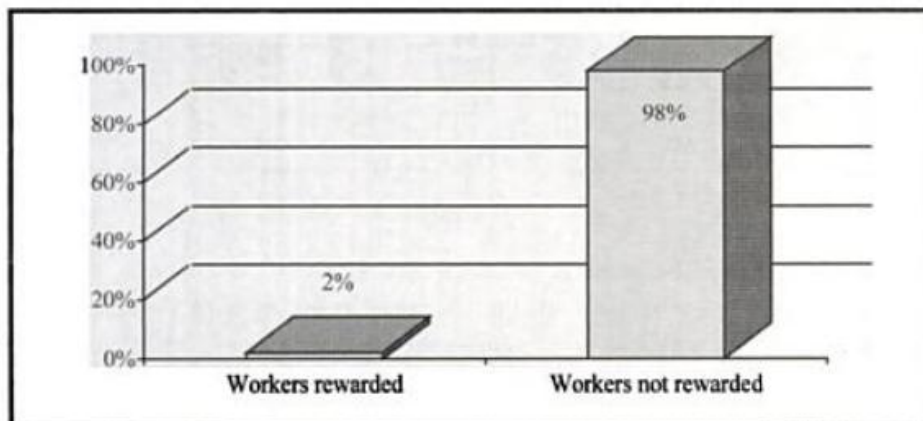


Figure 6 Percentage of workers who were rewarded for performing a job safely.

Lack of training and education was greatly exhibited on the actions of the workers towards safety. No worker of those who were surveyed mentioned that he joined a training course about safety. Although some of them explained that an engineer from the Labor ministry visits the site irregularly and gives some clarifications about safety and its importance, this cannot be considered as of the minimum level of training courses. It can be deducted from Figure 3 and Figure 7 that training workers would decrease the injury rate if accompanied also with top management commitment to a successful safety program.

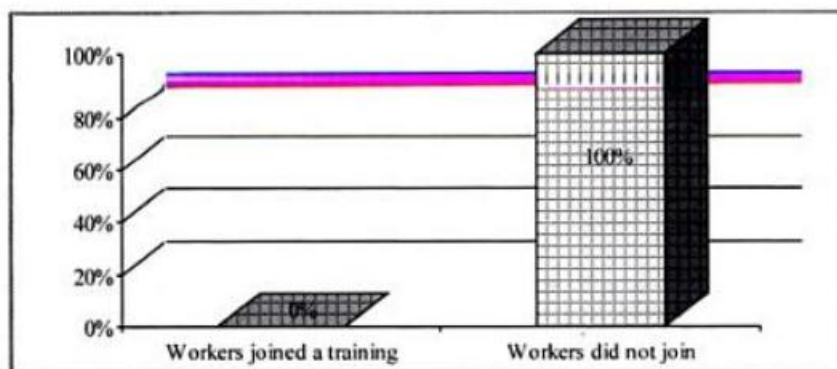


Figure 7 Percentage of workers who attended classes of training of safety.

4 CONCLUSIONS AND RECOMMENDATIONS

This paper describes the behavior of workers of construction industry towards safety and health in the Gaza Strip. It provides a broad insight on injuries due to accidents and how the workers felt about those injuries. A survey in this paper shows the lack of safety means in construction sites which together with workers behaviors led to high rate of accidents. It is obvious from figures that injury rate is high which reflects unsafe conditions in Gaza Strip. Relatively, the desire by workers to use safety equipments and tools is very low which contributed in the high rate of injury.

There are a high percentage of workers who accept to perform risk inherent tasks. This behavior is greatly reflected by character of workers and nature of life in Gaza Strip. Workers who showed a sense of safe performance did not receive enough rewards. Very small percentage of workers was rewarded for their safe actions. This would be a consequence of lack of commitment to safety by top management and lack of unsafe actions of workers. Training is completely ignored among labor in Gaza Strip. Lack of education, training, and awareness was dangerously exhibited in the behavior of workers to an extent that urgent safety regulations and programs should be set up to orient workers towards their safety.

In order to avoid time and cost overruns, contractors should utilize modified work programs for injured workers where they can perform productive duties without exposing them or their co-workers to further injury. It is also essential that workers realize the need for safe work practices. They must also understand that a hazard and a worker are the main two factors for an accident or injury to occur. Maintaining records for all incidents and accidents is an essential for safety. This can be achieved using a computer system or by simply adding a date and initials to the posted work schedule. In order to develop an up-to-date and efficient safety program, Documentation is highly recommended. It is also hoped that by bringing safety to the management and workers' attention, mainly by a safety program, will decrease the injury rate amongst workers.

At any company, top Management should ensure a safe and healthy work environment, by ensuring leadership, support and concern for safety and also by a complete and adequate safety program. A channel for open communication is also recommended, which allows for feedback and accountability for all workers. The establishment of a discipline system will enhance safety performance especially when implemented fairly and consistently. Such a discipline system would ensure that each violation of workplace regulations has to be linked to a procedure for corrective action appropriate to the seriousness of the violations. Workers should be given the opportunity to correct their own behavior. To make the disciplinary system workable and useful it should not focus only on punishment of workers but also on control of the work environment in order to prevent accidents and incidents.

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