

# A Critical Analysis of the Impact of Occupational Stress and the Counteracting Intervention Strategies

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## **Abstract**

*The purpose of the study is to critically evaluate occupational stress with special focus on project managers who are highly target driven and experience pressure to achieve results and meet targets within strict deadlines. The main objectives of the study include examining the central causes of occupational stress, exploring stress management strategies and assessing effective intervention programs. The methodological design was based on a questionnaire which was used as an instrument to collect information from project managers. The majority of the questions were closed and based on forced choice, requiring participants to choose answers from the available options. The questionnaire targeted senior management who, in turn, distributed the questionnaire to project managers via email. It was evident from the results that 58% of the participants were absent from work for one week in the previous year due to stress-related factors. The results also revealed that project management positions were gender biased with 75% of men occupying project management positions. The results further indicated that most managers were within the age range between 40-44 years. The study has practical implications on organizational policy in the context of stress prevention, development of stress management and coping strategies, intervention programs and post-intervention mechanisms.*

**Keywords** – Occupational stress, Construction industry, Project managers, Stress management, Intervention strategies

## **Introduction**

According to the occupational stress study of the construction industry, conducted by Hanna, et al. (2005) nearly 75% of construction professionals experience anxiety, or depression due to stress. Furthermore, research conducted by Chandrasekar, (2011) revealed the effect of stress on construction workers, but did not specifically focus on project managers within the industry. The research assessed common coping strategies applied by participants, in order to determine the effectiveness of these sources in helping individuals cope with stress (Aitken and Crawford, 2007). In addition, some studies Salehi et al. (2011); Aisha et al. (2013) focused on examining the impact of stress on different organizational occupations in the

health sector, such as nurses and care workers, however, investigations on the effect of stress on project managers in construction has been scarce. Yet, project managers are equally affected as they experience very high stress levels in conducting their key roles that are core to the success of various construction projects.

Consequently, the demanding responsibilities of project managers include challenging amount of workload ranging from pre-construction schedules to project completion stages. Furthermore, project management involves organizing, monitoring progress, budgeting, supervising project teams and managing deadlines as well as dealing with unpredictable situations. The decisions of projects managers can have tremendous effect on managing timescales and the successful completion of projects. Hence, it is evident that project managers are vulnerable to high levels of stress in their work.

In his study, Chandrasekar, (2011) found out that project managers often do not have full autonomy in making important decisions relating to their projects and such inflexible decision making processes can be stressful. Therefore, stress is considered to have a negative impact on project managers in the construction industry. However, according Lingard and Francis, (2004) stress can be positive when there are motivating factors such as success, recognition and awards. Furthermore, Ahn, et al. (2013) argued that there is a correlation between stress and performance, while Lewin and Sager, (2008) noted that stress can affect interpersonal relationships and therefore, an inverted-U-shaped relationship was found between stress indicators and their organizational interpersonal relationships. Thus, drawing from different construction industry sectors, and the literature on stress, this study aims to investigate the impact of occupational stress on project managers.

According to the research conducted by Anderson, et al. (2014) on organizational and behavior studies, occupational stress is a universal phenomenon that affects health, performance and the general well-being of employees. This view was supported by Health and Safety Executive (2007) study which highlighted that occupational stress is a complicated scientific construct that requires an initial understanding of the characteristics of the concept of stress. It is however, noted that stress is often associated with physiological and psychological reactions that stimulate negative mental or physical health conditions when a person's coping capabilities are challenged (Naharuddin and Sadegi, 2013). Therefore, in project management, occupational stress is generally described as happening when there are discrepancies between the physiological demands of the job and the inability of the project manager to cope with such increased workload.

Campbell, (2006) researched and noted that occupational stress has escalated progressively over the past few decades. In that context, increased levels of occupational stress occurs when one has little autonomy on the job demands and this situation has been linked to increased rates of heart attack, hypertension and other disorders. Scientific studies, for instance, Lattouf, et al. 2014; Weinberg and Cooper, (2011) confirm that workers who perceive that they are subjected to high demands, but have little control are at increased risk for cardiovascular disease. However, Haq, et al. (2008) argued that stress is a highly personalized phenomenon which varies broadly even when identical situations are compared. Therefore, the severity of job stress depends on the magnitude of the demands that are being made and the individual's sense of control or decision-making latitude that one possesses in dealing with those demands.

### **Literature Review**

In their research, Weinberg and Cooper, (2011) cautioned that modern living has brought with it, not only innumerable means of comfort, but also a plethora of demands that challenge human body and mind. This view was supported by the American Psychological Association's (APA) (2008), which emphasized that stress is a multi-dimensional reaction adaptive to an outward situation which would lead to physical, mental

and behavioral changes. The Association further elaborated that stress can either be temporary or long term, mild or severe, depending mostly on the employee's determination to recover. However, major stress problems are often sustained for a longer period. A common feature shared is that stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize (Payne, (1999).

Building on that notion, Larraz, (2011), defined stress as a state where a person perceives that the wellbeing is being endangered and therefore, energy must be directed towards protection. This view was broadened by Weinberg and Sutherland, (2010) who referred to stress as a state of imbalance that is elicited by an actual or perceived disparity between environmental demands and the person's capacity to cope with these demands. The authors highlighted that stress can be manifested through a variety of physiological, emotional and behavioural responses. Consistent with the above view, Leung et al. (2010) further explained that stress is an unpleasant external condition which produces a stressful reaction.

Furthermore, stress is related to internal stimuli such as thought, judgment, emotional and physical strain caused by an individual's response to pressure from the outside world. Martinez, (2009) contends that occupational stress refers to physical, mental and emotional wear and tear brought about by incongruence between the requirement of job and capabilities, resources and needs of the employee to cope with job demands. This analysis suggests that project management in the construction is highly demanding because of tight deadlines, meeting margins, and managing complex projects. Yet, in contrast to these challenges, the industry can be challenging and stimulating, providing exciting careers and a great sense of achievement even though stress levels are high.

Similarly, in their study, Weinberg, and Cooper, (2011), revealed that 84% of construction professionals felt that stress in the construction industry was a factor for poor retention levels. The authors investigated stress related issues in the construction industry with specific focus on managers and other professionals. They conducted a survey with 847 people participating of whom 578 claimed to have suffered from stress, anxiety or depression, and 154 had taken medical advice. The results demonstrated that stress is a serious problem in the industry. According to Weinberg, and Cooper, (2011) many people do not reveal to suffering from stress because they feel that admitting can cause a negative impact on their career. Consequently, failure to disclose stress can cause serious health and performance issues. Thus, the balance between a positively challenging industry and the point at which individuals lose the ability to cope with occupational stress, need to be understood.

Furthermore, evidence provided by Van Vegchel, et al. (2005a) indicated that stress is cutting across all the socio economic groups of population and therefore, is not only affecting managers as labourers can be highly prone to stress too. A key factor to be considered according Martinez, (2009) is that job stress refers to one's emotional response to work environment that appears threatening to the worker. However, Chartered Institute of Personnel and Development, (2004) conducted a study about stress in the organization and concluded that in addition to the stressful factors that are found in many organizations, each organization has to be viewed as a social system. This in turn, suggests that stress reactions should be analyzed in the context of a particular type of an organizational system rather than using a generic approach. The study further highlighted that the reactions of stress represent a process that has an impact upon the social system. However, Kumar, (2004), have divided the stress factors in organizations into personal and organizational categories. They think that the employee and the structure of organization are the reasons of stress increase.

This argument was further broadened by Lehrel, et al, (2007), who studied social intelligence and confirmed that employees' characteristics can influence their sensitivity to stress. These characteristics can affect their work and behavior and can determine their stress levels. Drawing upon this framework, (Locker, 1996)

viewed mental health as the common link between the individual and the occupation and the author believes that the less the coordination with their occupation, the more stress will increase. Consistent with this view, Chirayath, (2009), suggests that occupational stress can be classified as any kind of stress that may result in some mental health problems.

### **Categorizing Stress**

The key component of stress is associated with the subjective feelings of individuals, in which the demands of work or life exceed the belief of the individual in his or her capacity to cope Lath, (2010). Accordingly, the following categories of stress are explained.

#### *Objective Stress*

It follows that objective stress is linked with the evaluation of threat on the basis of cognitive factors. Hence, this type of stress is determined by the individual's perception of his or her ability to carry out a job-related task involving a certain degree of difficulty or challenge. Thus, objective stress is induced due to the discrepancy between an individual's perceived ability and the actual ability to deal effectively with the tasks at hand (Halkos and Bousinakis, 2010). In that regard, cognitive factors can include project deadlines, site visits, task ambiguity, complex decision making, interpersonal dynamics and numerous meetings (Kim and Philips 2014).

#### *Job Burnout Syndrome*

Job burnout is a syndrome resulting from prolonged exposure to work stress that leads to withdrawal from the organization. Building on this definition, (Bakker, et al. 2004) explained that job burnout occurs on three phases such as emotional exhaustion, depersonalize and feelings of low personal accomplishment. Further symptoms of burnout include changes in the social life of individuals, for instance project managers who are affected may avoid frequent communication with people as well as showing low motivation and commitment due to prolonged frustration and complains about low accomplishment (Schaufeli, and Bakker, 2004). This can result in frequent fatigue and sense of hopelessness which occur due to failure on accomplishing work tasks. This will exacerbated by interpersonal dynamics for instance, working with people with type 'A' behavior personality which is characterized by excessive drive, competitiveness, impatience, and hostility (Weinberg and Cooper, 2011). According to Weeks and Fournier (2010), human beings often manifest different behaviors in response to stressful situations. For instance, Person-environment (P-E fit) refers to the match between a worker's abilities, needs, and values, and organizational demands, rewards, and values. Measurement of P-E fit involves assessing worker skills and abilities, along with job demands and features of the work environment. All of these stressful factors have direct impact on work performance of project managers and can result in failure to achieve successful project completion.

#### *Physiological Stress*

Research has found that the physiological stress of project managers is generally caused by role ambiguity, lack of feedback, lack of autonomy, organizational change and work-family conflict, which results from efforts to balance competing demands of work and family (American Psychological Association's (APA) 2008). Furthermore it was noted that work overload, can be a stressor when a job requires excessive speed, output, or concentration (Schaufeli, and Bakker, 2004). Project managers can experience a wide range of stressful situations which include assessing the viability of the project in the pre-construction stage to responding to feedback from clients after the construction stage. Similarly, acting as a communication agent,

for instance, between clients, project team, architects, structural engineers, building services engineers, surveyors, suppliers, subcontractors and the construction company can be stressful (Larraz, 2011). Thus, when physiological occurs, hormones will be released from the brain in order to support the other parts of the body during the changes or stressful circumstances (Binder 2010). This can have effect on the body as it will constantly, try to overcome stress by physiological adjustments. This process, in which the body prepares itself to deal with a threat, is named the “fight-or-flight response” (Srivastav, 2007). However, if the stressful conditions persevere and continuously affect a person, the physiological adjustments may then persist. In that context, physiological stress will gradually manifest in the form of headaches, back pain, loss of appetite, and so forth (Al-Otaibi et al. 2012). Hence, it is widely recognized that the complexity of personal and organizational pressures can have an impact on project management. For example, in comparison with other construction professionals, the role of project managers requires constant involvement with the project from inception to completion.

#### *Performance Achievement Pressure*

According to the research conducted by Arsalani, et al. (2011), there are three common criteria for measuring the task performance for project managers: completion timescales, budget management, and meeting quality expectations. The authors stressed that in order to achieve successful performance in these core areas, project managers should monitor project timescales while demonstrating the ability to meet quality requirements for the clients within specified budget limits. This view was supported by Goldenhar et al. (2003) who highlighted that there is strong correlation between stress and the task performance of project managers, taking into consideration the increasing demands, constraints, and complexity of the projects. This suggests that construction managers are responsible for complying with regulations, low accident rates on site, and providing environmentally friendly construction methods and materials. Furthermore, the individual sources of work stress can also include lack of self-efficacy, which is an individual’s beliefs in his or her abilities to engage in courses of action that will lead to desired outcomes (Kato, 2012). For instance, a poor task performance by a project manager usually means lack of self-belief in achieving the intended outcomes and poor decision making processes.

#### *Workplace Interpersonal Dynamics*

Managing projects often involves multi-stakeholders, such as the clients, teams, consultants, contractors, and subcontractors. It is therefore, imminent that these collaborative relationships can pose a challenge in communication and interactions. Consequently, this has a direct influence on the success of the projects. Hence, there is need to equip project managers with good interpersonal skills to ensure that effective collaborative relationships will facilitate successful completion of projects (Cicala, 2014). According to Kato (2013), there are three coping strategies that are central to dealing with interpersonal stressors: distancing coping, reassessing coping, and constructive coping. The author explained how distancing coping strategies can impair and ultimately destroy stressful relationship. The process will start by using avoidance techniques which will lead to ending communication completely. Therefore, it can be concluded that distancing coping strategy contributes to poor interpersonal relationships in the workplace. This view was supported by Cheng et al. (2011), who strongly believe that deterioration of interpersonal relationships is significantly related to psychological and physiological dysfunctions which can in turn, cause conditions such as depression anxiety.

However, reassessing coping strategy requires consistent effort to work on improving the bad relationships. This involves a realistic assessment of the matter and focusing more on the positive aspect of the matter rather than stressing the negative side. On the other hand, constructive coping involves empathizing and

focusing more on sustaining relationships rather than condemning the other person. The strategy requires reflection on, own actions, respecting others, maintaining harmonious relations by trying to understand issues from the other person's perspective. Thus, it is important for project managers to learn to build positive relationships with all the stakeholders.

### **Organizational factors**

Organizational factors may include a variety of issues such as poor policies and performance evaluation systems, perceived inequality on distribution of rewards, excessive work overload, poor working conditions, lack of autonomy and mismanagement of grievances (Raghavan et al. 2010). In addition to that, Kim and Philips, (2014) also researched and found out that role conflict can be a source of stress and this appears when an employee encounters duties and needs that are of no interest to them. This argument was supported by Binder (2010), who revealed that role-related stress has provided the foundation for most of the empirical work on role strain. The author further explained that role over-load refers to a scenario, where a person is expected to accomplish more than what he or she is able to achieve in a particular time frame (quantitative overload) or wherein a person is taxed beyond their understanding, competencies, or talents (qualitative overload).

It also follows from the argument presented by Lattouf et al. (2014) that role-related stress can be caused by role insufficiency which appears when someone does not get the necessary skill and experience that the job demands and the problem is exacerbated when the organization does not provide the necessary personal development opportunities. Whereas, role under-load occurs when the employee does not use all the knowledge and skills that they possess. In other words, the person's abilities are not fully exploited and this situation is referred to as underutilization. According to Smith, (2002) there is another potential category of stress in the work environment which relates to lack or poor skills in managing people, increased team dynamics and politics.

In addition, Krantz, Berntsson, and Lundberg, (2005) further explored how technology can have an impact on stress. The authors researched and found out that technological progress has an important effect on occupational stress, for instance, they cited that changes in technology such as portable computers and the internet which enable the employee to perform work-related tasks in a variety of locations can result in a blurred boundary between work and social life. This argument was supported by (Nair, 2007), who expressed that when employees spend the majority of their days on work-related activities and feel as if they are neglecting other important components of their lives, stress and unhappiness can occur as a result. In that regard, Gregson, (2000), suggested that organizations should institute policies, procedures, actions, and expectations that enable employees to easily pursue more balanced lives. Thus, work-life balance enables employees to pay much more attention to all the important aspects of their lives,(Paulsen, 1994).

### **The effects of stress on health**

According to Moorhead and Griffin, (2005), regular stress reactions include tension, irritability, inability to concentrate, and a variety of physical symptoms such as headache, fast heartbeat, back pain, slip disc and eye fatigue. In that regard, Lee, (1997) explained that when people feel stressed by something going on around them, their bodies react by releasing chemicals into the blood. The author emphasized that these chemicals can provide more energy and strength, which can be useful if stress is caused by physical danger. However, Gordon, (2000), further elaborated that this can have a negative effect, if stress is in response to something emotional and there is no outlet for this extra energy and strength. For instance, the Srivastav, (2007) exemplified that handling stress that arises owing to fear of losing a job or to cope with the increasing competition, affects the employee's health and this can also results in poor performance.

Gavali, 2009), highlighted that some companies are trying to help employees combat stress better by provide counseling intervention to deal with stress or mental fatigue. This is intended to help the employees strike a healthy balance between work and social life. In coping with stress, the author prescribed mechanisms such as exercising, relaxing techniques and time management as useful. The literature review revealed that occupational stress is fast growing and has become a health hazard in the work place Sharp, (1996). Evidence provided by the author indicated that occupational stress is not only caused by work overload or time pressure, but factors such as poor working conditions and more importantly employees are often affected by stress when grievance handling procedures are not well defined.

It is apparent that stress has negative consequences, thus, a range of coping strategies need to be endorsed by employers in order to deal with the effects of both mental and physical effects of stress Canadian Public Service Commission, (1992). Organizations can develop supportive policies and work more closely with health practitioners. It is therefore important that occupational health practitioners work together to ensure that employees suffering from mental and physical distress receive the support that they need. Indeed, such interventions can take a preventative form.

### **Methodology**

The research methodology in the present study deals with data collection methods, sampling, data analysis and interpretations. Therefore, in order to build a comprehensive picture of the characteristics of occupational stress that is experienced by project managers in the construction industry, the research was based on a survey. This approach allowed (a) a single population in the construction industry to be selected, and (b) scores obtained from this population were analysed in a quantitative (statistical) manner. The primary purpose for using a survey was to discover, interpret data and contribute to the advancement of knowledge and understanding of causes and effects of occupational stress. The results provide an interesting insight into the level and extent of reported occupational stress within the construction industry.

### **Sample**

The survey targeted 400 project managers from UK construction companies listed in the UK construction directory. Of these, 250 project managers agreed to participate in the survey, representing a positive response rate of 62.5%. Respondents were first asked general demographic questions to ensure that the sample was representative of the broader population. However, the sample was subject to certain biases such as representation imbalance on gender and age. In addition, screening questions were asked to ensure that all the participants were suitable according to the required criteria of occupying a project management position and being currently employed full time in the UK construction industry.

### **Data Collection Method**

The primary tool employed to gather data was a questionnaire which was designed to collect relevant information from project managers. In order for an accurate estimate to be made regarding the prevalence of occupational stress in this industry, it was important to aim to achieve a good response rate from the survey. However, considering how diverse the workforce is in the construction industry, it was realized that achieving a good response rate across the industry was going to be difficult. Hence, the study focused on project managers as they are more exposed to high stress levels because of the nature of their jobs. The most effective method for distributing the questionnaires was to target senior management who, in turn, distributed the questionnaire to project managers, with an accompaniment letter encouraging the managers to respond via email directly to the researcher to preserve anonymity.

The majority of the questions were closed and based on forced choice, requiring participants to choose an answer from the available options. The categories of occupational stressors that were investigated included: absenteeism, physical working conditions, workload pressure, deadline pressure, stress related conditions, organizational stressors, stress management strategies and intervention programs.

Elements in the stress related category included physiological cognitive, emotional behavior related conditions. While stress related illnesses focused on migraine headaches, high blood pressure, digestive problems, ulcers and pulmonary hypertension. On the other hand, absenteeism was measured in terms of the duration of absenteeism due to stress with thin the range of 1 day to more than one month. Organisational factors affecting occupational stress investigated elements such as noise levels, poor planning, inadequate temperatures and ventilation, crisis management, inadequate training, unsociable hours, inadequate staffing and poor communication. Furthermore, stress management strategies investigated relaxation techniques, exercising, time management, positive thinking and vacation. Regarding intervention programmes, the elements examined included training, counselling, peer support, health clubs and occupational health representatives.

### **Findings and Discussion**

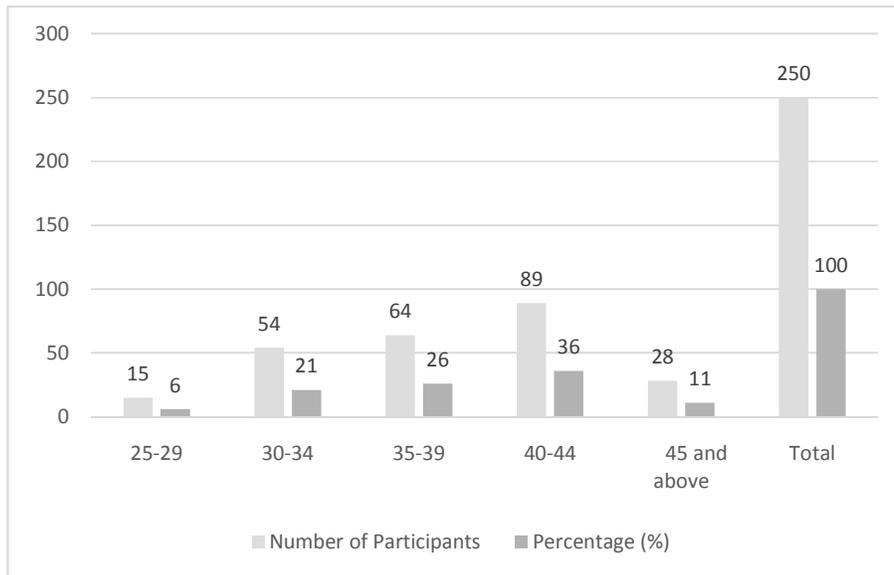
It was noted from the findings that project management in the construction industry was dominated by male and only 25% of the project managers were female. The survey also revealed that most managers were within the age range between 40-44 years.

The survey revealed that 58% of the participants were absent from work for 1 week in the previous year due to stress-related factors in the construction industry. This was broken down further to show that 39% of participants suffered very high levels of stress. Organizational factors contributed to stress with 17% of participants revealing that their stress was caused by poor planning while 14% mentioned that crisis management was the main cause of stress in the construction industry. The results revealed that 13% of participants were stressed out because of shortage of staff, while 15% alluded their stress to poor communication.

Many participants suffered stress-related illnesses for instance, 30% experienced migraine headaches, while 24% were diagnosed with high blood pressure. Furthermore, 14% suffered from digestive problems. The survey also revealed different serious conditions suffered due to occupational stress, with 38% of participants reporting physiological conditions, while 32% reported emotional conditions.

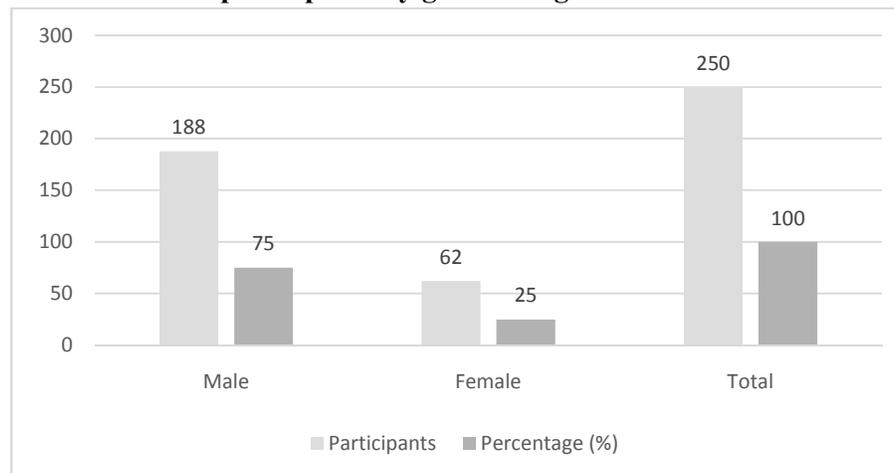
The survey investigated effective stress management strategies and found out that 29% of the participants preferred relaxation techniques, while 23% opted for exercise. In the following section, a graphical representation of data is shown covering a wide spectrum of stress related issues, such as causes, effects and intervention programs suggested. The graphs start with general information to establish age and gender of participants, before proceeding to some of the issues mentioned above.

**Classification of participants by age range: Figure 1**



It is observed from the survey that the most represented age group is 40-44 with 36% of the project managers falling in this range. The age range 45 and above is less represented with only 11% of the project managers identified in this range. However, it would seem from results that the sample appears to be generally representative of each of the age group range with the exception of the age range 25 -29 which is under-represented by the current sample, with only 6% representation.

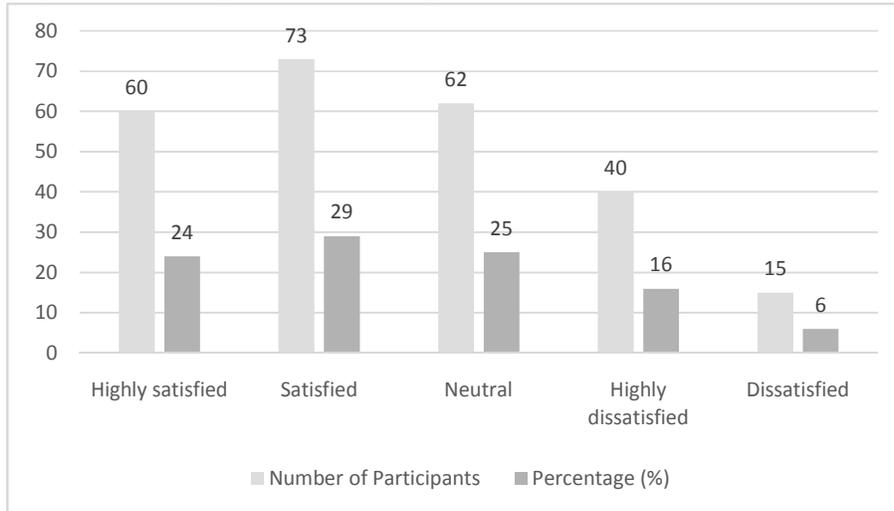
**Classification of participants by gender: Figure2**



The vast majority of the sample were male, comprising 75% of those who responded to the survey with women only accounting for 25% of the sample. Therefore it would seem that females have been slightly under represented in this study, although anecdotal information suggests that most females within the construction industry work within office-based occupations Bryne, (2005) which have not been specifically targeted by this study. It is therefore evident that gender-based discrimination is also a universal phenomenon in the construction industry. Yet, women comprise half of the world’s population, but are still not equally occupying higher positions with their male counterparts (Baruah, 2008).Therefore, when male project managers in the construction industry often take the promotional opportunities, women will have no

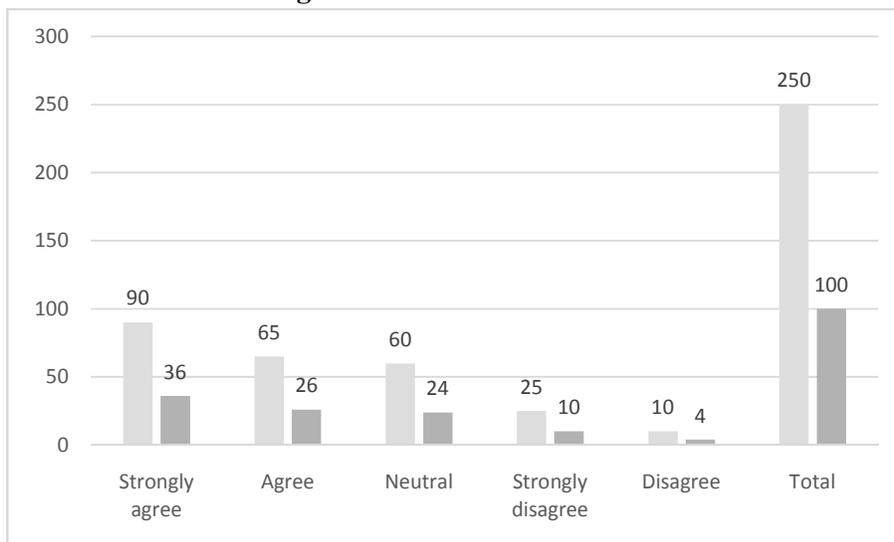
opportunities to acquire higher project management skills. Thus, women need to be empowered in order to break the glass ceiling in employment (Bryne, 2005). Even though, it is evident that the construction industry has the largest employers in the UK, progress in hiring or promoting women in project management positions has been slow.

**Physical Working Conditions: Figure 3**



It is evident from the survey that 24% of the participants were highly satisfied and 29% were satisfied with the working conditions. However, 25% remained neutral, while 16% were dissatisfied and only 6% showed dissatisfaction. It is important for construction companies to improve physical working conditions as this can in turn, result in improving overall satisfaction as well as performance. Previous studies have shown significant correlation between physical work environmental conditions and stress (Leung, et al. 2008). This implies that construction companies should consider improving the work environment in order to reduce the levels of stress. It is important to note that those project managers who perceive working conditions to be poor are stressed out and consequently, cannot perform satisfactory.

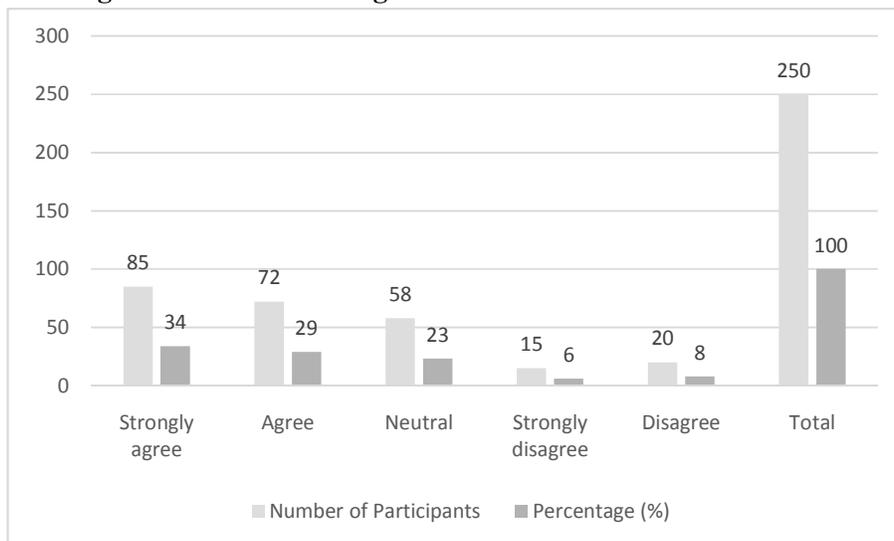
**Workload Pressure: Figure 4**



Significantly, 36% of the participants strongly felt that the level of workload was causing them pressure and hence, stressful. This concern was also highlighted by 26% of the participants who agreed that the workload pressure was causing them stress. The results indicated that 24% of participants remained neutral, while only 10% strongly disagreed and 4% disagreed that their workload was a source of stress. When the workload exceeds capabilities, stress is generated and this can be viewed as deviation between the expected workload and the actual ability of the project manager. Regarding that the amount of workload is determined by the level of responsibilities, it is predictable that project managers deal with heavy workloads. The results of this study was echoed by Lath, (2010) who conducted an interview-based research among project managers and found out that all interviewed project managers recognized excessive workload as a stressor.

The study further proved that the performance of a project manager will decline considerably over a maximum amount of workload. This could be because work overload causes a feeling of being burnt-out which in turn, can lead to stress (Chandrasekar, 2011). It is therefore, evident from the results that workload pressure is the strongest predictor of stress, and therefore the initial concern of construction companies should be to avoid overwhelming levels of workload in order to prevent stress and health impairment in project managers. For instance, task related stressors in project management can include task complexity, task completion pace, pressure to meet deadlines, and achieving high targets (Halkos, and Bousinakis, 2010).

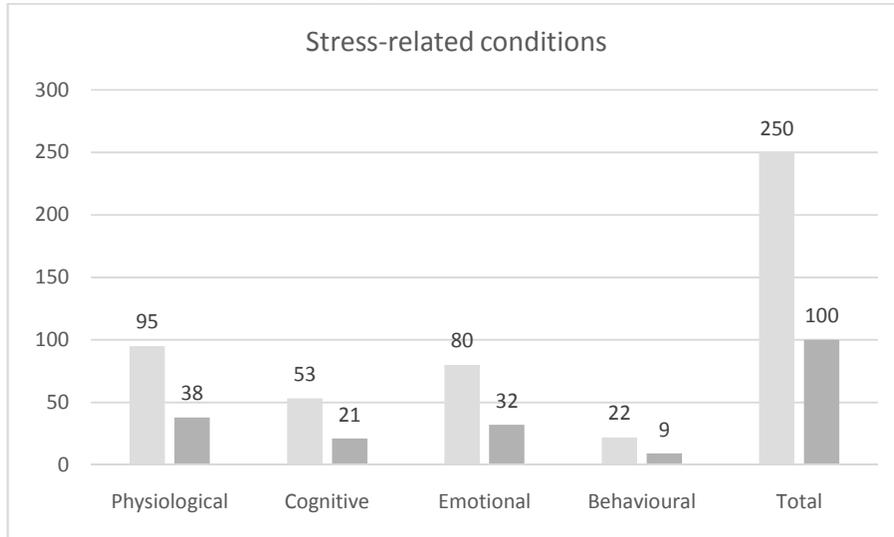
#### Meeting Deadlines Stress: Figure 5



Stress occurs when project managers are pressured to complete projects prior to the deadline for completion. This corresponded with 34% of participants who strongly expressed that the pressure to meet deadlines was a cause of stress. Furthermore, 29% also agreed that meeting deadlines was causing them pressure. It is observed from the survey that 23% remained neutral, while only 8% of the participants did not see their workload as an issue. Pressure from the company to get the project completed on time and without financial penalties, as well as pressure from the clients constantly requesting information about progress, can be stressful. In this case, the project completion timescale is established rather than the number of hours to be used in completing the task. The pressure to meet deadlines can be exacerbated when some project managers have high responsibility with no corresponding autonomy. Promoting greater autonomy by enabling project managers to make decisions about how they respond to demands encountered in the course

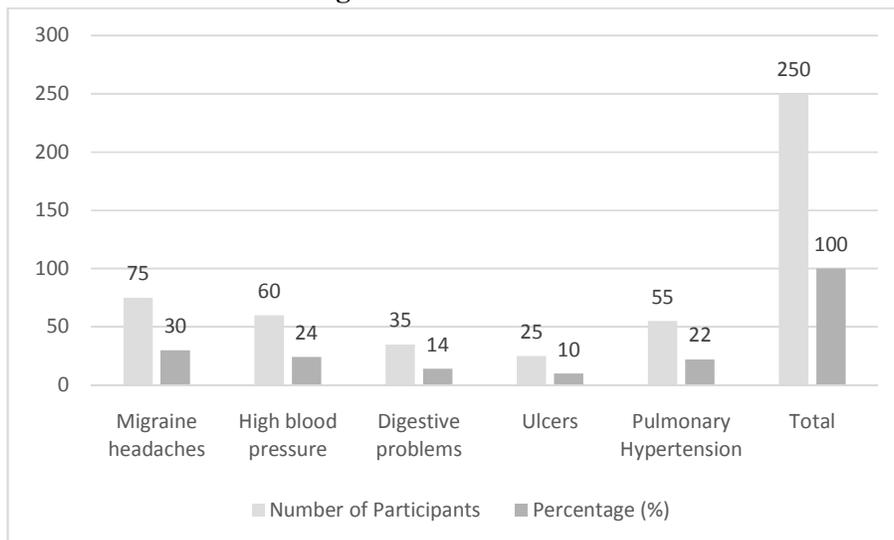
of their work can make work demands more manageable. This approach seems suitable for construction managers given the tendency to work in small teams to complete projects.

**Stress-related conditions: Figure 6**



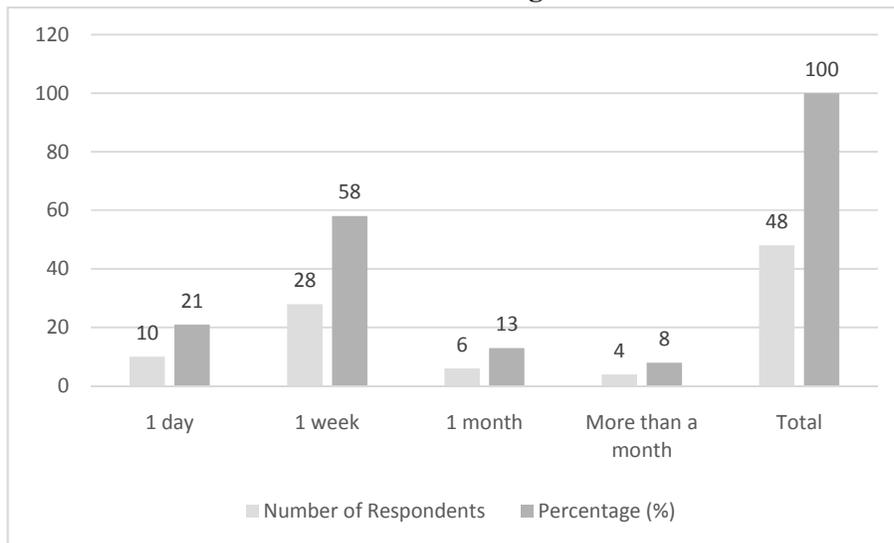
The most commonly cited type of stress condition was physiological with 38% of participants reporting that they were physiologically distressed. It was also observed that 32% suffered from emotional stress, while 21% of participants expressed that their stress was cognitive related. Only 9% mentioned that their behavior was affected by stress. The results suggest that the construction industry experiences high stress related physiological conditions. The results of the present study provide further evidence that behavior disorders are the least pressing occupational health issue within the industry. Furthermore, it is evident from the results that emotional related condition is high and emotional related conditions include depression and anxiety which are major health concerns in the industry.

**Stress related illnesses: Figure 7**



It was observed from the survey that 30% of the participants linked migraine headaches to stress. It was also noted that 24% suffered from high blood pressure due to stress and 14% experienced digestive problems. It was noted that 22% of the participants experienced pulmonary hypertension. Only 10% cited ulcers as an illness resulting from stress. The effects of these illnesses can be devastating as these can often cause long-term negative impact on quality of life. It is therefore, paramount that managing occupational stress should focus on factors that reduce health damage. Thus, managing occupational health should not just concentrate for instance, on pre-employment health checks, first aid, welfare, general information and health and safety. In addition, to the health factors investigated in this study, Weinberg and Cooper, (2011) researched and found out that extremely loud noise can cause gradual hearing impairment due to repeated exposure to noise.

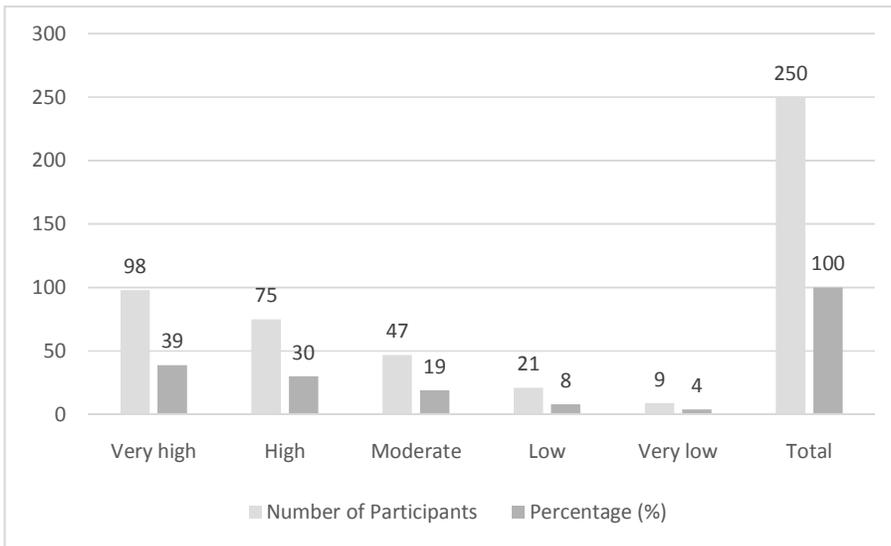
**Duration of absenteeism due to stress: Figure 8**



The survey revealed that more than half of the participants for instance, 58% were absent from work for 1 week because of stress, while 21% missed work for a day because of stress. It was also observed that 13% were absent for a month, but not many people were absent for more than a month with only 8% reporting absenteeism in that category. Absenteeism can create enormous problems for construction companies as this can seriously affect planning and the effectiveness of meeting projects completion deadlines. According to Salehi et al. (2011), one per cent increase in absenteeism causes an increase in labour cost of 1.5 per cent. Hence, reducing absenteeism can lead to reduced labour cost. Furthermore, Ahn and Lee (2014) noted that absenteeism accounts for a loss of 10 - 20 per cent of available work-time on site.

It is therefore imperative that management should not be complacent, but should continue to monitor and reduce the level of absenteeism (Ahn and Lee 2014). The benefits gained by construction companies will be increased productivity and lower turnover due to stress. Furthermore, the additional expenses suffered in order to cover up for the absent work-force can be reduced, so as the large amount of delay in completing projects experienced by many construction companies.

**Level of Stress: Figure 9**



It is evident from the survey that 39% of the participants suffered from very high level of stress and 30% reported high level of stress. While 19% of the participants were moderately affected. Only 4% mentioned that their stress levels were low. Project managers are often involved in tight schedules to complete phases of work or entire projects, resulting in a need to accelerate construction programmes and increase working hours in the form of overtime. Hence, Binder, (2010) in his study reported that excessive overtime has been found to be stressful and counter-productive. It was also noted that work schedules that extend beyond 40 hours per week reduce labour productivity and create excessive inflation of labour costs, without tangible benefit to the completion schedule (Srivastav, (2007). Therefore, the use of overtime to combat time restraints increases construction costs and inhibits long-term improvements in performance.

**Organizational factors affecting occupational stress Figure 10**

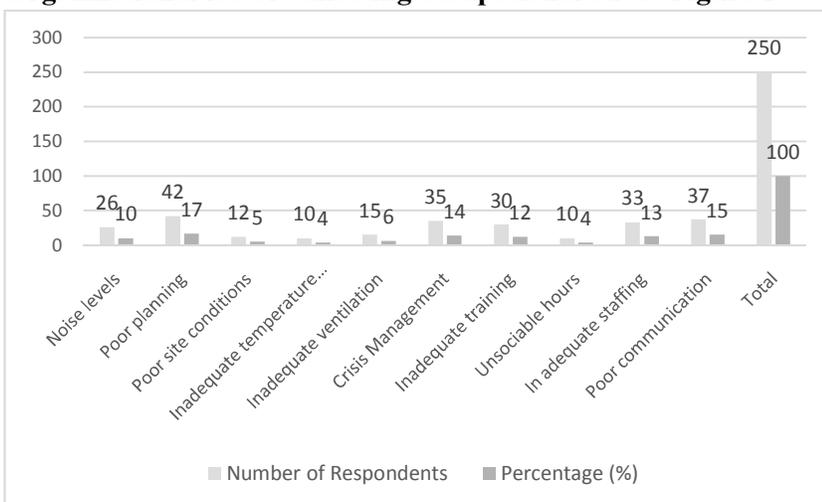
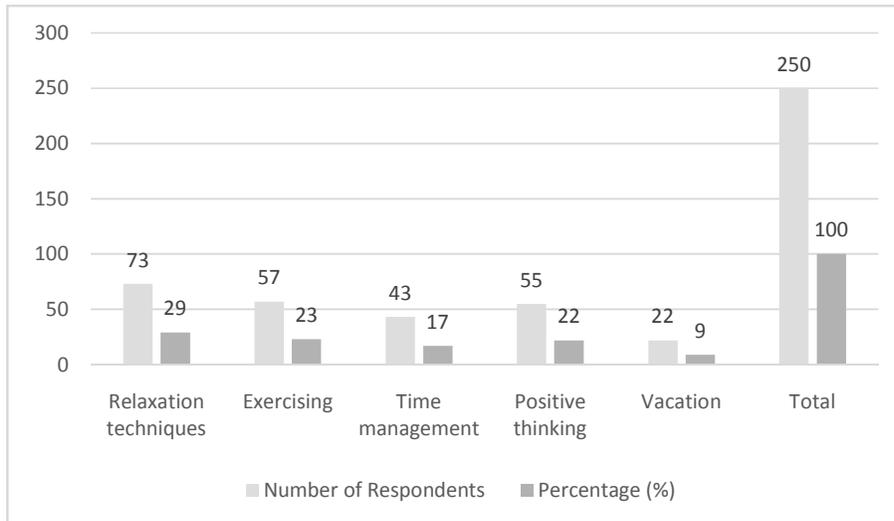


Figure 10 shows the result of the eleven organizational related stress factors investigated. It was evident from the survey that 17% suffered from stress because of poor planning, while 15% were stressed out because of poor communication. 14% of the participants cited crisis management as stressful. However, 13% confirmed that they experienced stress because of inadequate staffing. 12% wished there was more

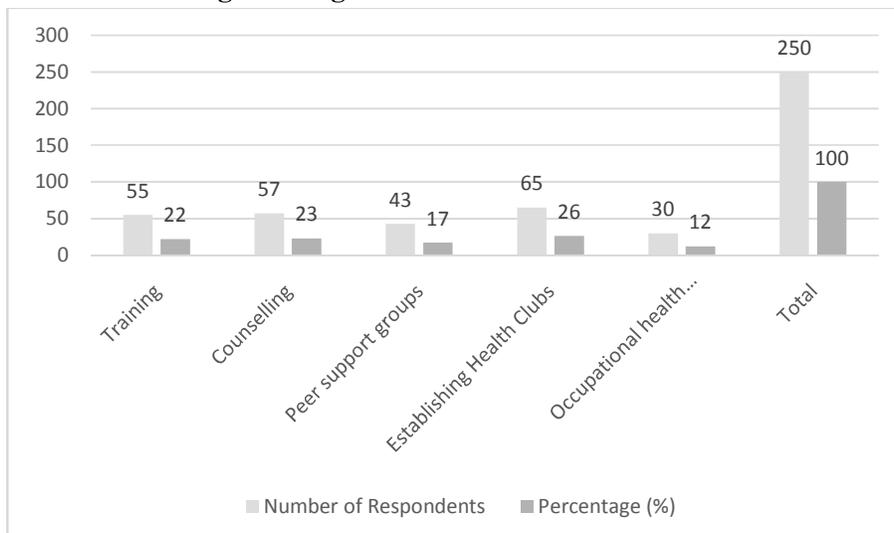
training because their stress was due to lack of enough training. Also, 10% cited noise levels and only 4% expressed unsociable hours as a major source of stress. Therefore, these organizational factors were perceived as key sources of stress among the project managers sampled.

**Stress management strategies Figure 11**



It was observed from the survey that 29% of the participants practiced relaxation techniques in order to cope with stress while 23% of the respondents preferred to exercise. 22% used positive thinking to cope with stress and time management was effective in coping with stress with 17% confirming that time management was useful in managing stress. Only 9% used vacations as a technique for coping with stress. It is therefore, important to proactively manage stress. This can include training on causes and consequences of stress, how to recognize warning signs of excessive stress. While a certain amount of job stress is expected, the effects of stress on project managers can cause decreased productivity and increased absenteeism, accidents, turnover, and even increased healthcare costs. Therefore, construction companies can identify factors that cause job stress and implement programs which will help to monitor and decrease stress levels.

**Intervention Programs Figure 12**



It was noted that 26% recommended health clubs as a valuable intervention program. While 23% preferred counselling. Furthermore, 22% of the participants confirmed that training was a good way of intervention in dealing with stress. However, 12% preferred to be helped by an occupational health representative. It is therefore, important to promote primary stress prevention programs as well as improving coping strategies. In turn, these interventional programs can have a positive impact in reducing stress on construction managers.

However, it was noted that organisational interventions are not tailor-made (Larraz, 2011). This is because while programs may enhance job control, individual coping skills are also needed to maintain control. According to Aisha, et al. (2013) it is concluded that stress interventions should focus more on individually directed interventions, which mainly aim at adapting individuals to their environment. In that regard, studies that focused more on individual interventions not only showed more consistent and positive results as compared to the organisational ones (Halkos and Bousinakis 2010). Furthermore, Lath, (2010) recommended interventions that are aimed at reducing role overload and increasing participation in decision making.

### **Conclusions**

The study highlighted the importance of monitoring stress emanating from increasing demands on project management. Stress can cause higher rate of absenteeism, work burnout and staff turnover due to the desire to change careers. However, the effect of coping strategies such as training, counselling, relaxation techniques, exercises etc. can relieve stress. It was noted that workload, pressure to meet deadline, crisis management, poor planning and communication are prevalent stressors for project managers. Improving site conditions, noise levels, temperatures and ventilation can reduce stress levels. Working unsociable hours can also result in negative physiological effects. For instance, depression is often linked to work overload and tight deadlines. In addition, most of the work for project managers is timescale oriented and if deadlines are not met, this can lead to anxiety. Most stress management programs are reactive rather than being proactive in eliminating or reducing the actual stressors themselves.

Employee assistance programs such as counseling and relaxation techniques have shown positive results in dealing with stress, however their effectiveness is limited since they are only short-term solutions. A wide range of other strategies such as autonomy, participation in key decisions and resource control can be directed towards increasing worker wellbeing. Furthermore, redesigning tasks, improving the physical work environment, establishing more flexible work schedules, participative management, employee-centered career development programs, providing feedback and social support for employees and more equitable reward system can be useful in dealing with stress. These approaches could prevent stress at work rather than treat stress once it has developed.

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