

CHAPTER ONE

Background of the study

1.1 Introduction

Stress is used in everyday vocabulary to capture a variety of human experiences that are disturbing or disruptive. The subjective sensations commonly experienced in conjunction with “feeling stressed” are headaches, loss of appetite and sleeping problems. There are also behavioral ways in which stress can manifest itself like crying, smoking, excessive drinking, and decreased work performance (Ghauri and Gronhaug, 2005).

According to Cooper L and Payne R (1978) major and minor causes of deaths, labour turnover and low work performance among workers in the working population , blue collar workers and the unskilled are more likely to experience stress than are skilled and professional workers. Less skilled industrial workers e.g. secretaries, have a rather tenuous attachment to their work role. They continue to work without significant financial reward , not because of any intrinsic satisfaction in their work but because society has not provided any meaningful alternatives. Blue collar workers still accept the need to work but expect little fulfillment from their specific jobs.

Stressful working conditions are inevitable, and strategies must be found to cope with stressful situations. This study focus on the causes and effects of stress on blue collar workers and on how to manage this work stress. Stress among blue collar workers is caused by a number of factors that are either internal or external to the workers; life in complex industrial organizations can be a great source of stress for workers.

A great deal of work has been done to elucidate the connection of specific job conditions to physical and/or mental health. Bless and Higson-Smith (2000) found that poor mental health was directly related to unpleasant work conditions such as the necessity to work fast, the exertion of great physical effort and inconvenient working hours. There is increasing evidence that physical health too, is adversely affected by repetitive work and dehumanizing environment such as the paced assembly line .

Work load may refer to overload as well as underload. Work overload means having too much to do. The overload may be, that is too difficult to perform. Bond and Bunce (2003) have theorized that “overload” in most systems leads to breakdown, whether in a single biological cell, a human being or other systems. Among workers, Overload is significantly related to a number of symptoms or indicators of stress such as escapist drinking, absenteeism from work, low motivation to work and low self-esteem.

Role ambiguity exists when an individual has inadequate information about his or her work role, where there is lack of clarity about the work objectives associated with the role, and about colleagues' expectation of the work role. For example, when workers employed to clean diamonds but not why. Studies have shown that men who suffer role ambiguity, experience low job satisfaction, high job related tension and low self-confidence. Role conflict exists when an individual in a particular work role is torn by conflicting job demands or is required to do things he/she really does not think are part of the job specification (Melamed, 1989). This frequently occurs when a person is caught between two groups of people who demand different kinds of behavior or expect that the job should entail different functions .

Another important stressor associated with one's organizational role is responsibility for other people. There is a difference between responsibility for people and responsibility for things. Parker (1998) found that responsibility for

people is significantly more likely to lead to coronary heart disease than responsibility for things. Responsibility for people means that one has to spend more time interacting with others, attending meetings and working alone. Apart from obvious factors such as office politics and relations among colleagues, there is another element here. Stress can be caused not only by the pressure of relationships but also by its opposite, a lack of adequate social relationships and support in difficult situations (Lazarus, 1991).

1.2 Statement of the problem

The purpose of carrying out this study is to investigate what are the causes of stress among blue collar workers. Most of us are aware that employee stress is an increasing problem in organizations. Moreover, the study seeks to ascertain whether stress is functional or dysfunctional to the proper operation of an organization and also to determine ways and procedures that may serve to minimize of stress in the working environment.

The study assumes that blue collar workers and unskilled workers are more at risk of facing stress than are skilled or professional workers. Another assumption is that stressful working conditions are inevitable, so that we can only minimize stressful working conditions. The study further assumes that stressful working conditions are results of poor working conditions not eliminate them, work load and dissatisfaction.

1.3 Objectives of the study

The main objective of the study is to determine the major causes of work stress among blue collar workers and to measure the extent to which this work stress affects workers performance. The general objectives of the study are:

1. To provide organizations with some insight into the potentially stressful working conditions among workers in blue collar jobs.
2. To suggest some alternative strategies or courses of action that may serve to alleviate, minimize and help to cope with stressful working conditions.
3. To determine the extent to which stress affects the worker and the organization as a whole.

1.4 Significance of the study

The study seeks to make a significant contribution to an understanding of potential stressful working conditions of workers in the blue collar sector. In view of South Africa's hosting of the 2010 soccer world cup the mining sector will need to meet a high demand for jewellery. Stress- preventative strategies will help to alleviate, minimize and help cope with stressful situations. According to Posig and Kickul (2003) the organizational consequences of stress include reduction in the quality and quantity of job performance, increased absenteeism and turnover, as well as increased disciplinary offences and grievances. These should be prevented as much as possible.

1.5 Review of the literature

Occupational practitioners are starting to adopt a proactive approach to managing employee health matters. In the realization that prevention is better than cure, a holistic focus is required that will also take into account the broader social and domestic dynamics of employees, a focus that aims to achieve a well balanced work and family life (Cooper, 1985). Wellness programmes focus on the employee's overall physical and mental health. These programmes concentrate on preventing or correcting specific health problems, health hazards and negative health habits. They include not only disease identification but also

lifestyle modification, such as hypertension identification and control, smoking cessation and job and personal stress management. Monat and Lazarus (1977) argue that wellness programmes can be as simple and inexpensive as providing information about stop-smoking clinics and weight-loss programmes, or as comprehensive and expensive as providing professional health screening and multi-million Rand fitness facilities.

According to Leedy (2001) poor mental health is related to conditions at work, exposure to health and safety hazards, unpleasant work conditions, necessity to work fast and need to exert great effort. Work itself, lack of skills and abilities, perception of the job as uninteresting and repetitive, role overload, job demands which are unclear or conflicting (role ambiguity and role conflict), close supervision and lack of autonomy and feedback from supervisors all lead to poor mental health and cause employees to be stressed up and less than fully productive; only a “happy worker is a productive worker”.

Robbins, Odendaal and Roodt (2003) found that two conditions are necessary for potential stress to become actual stress. There must be uncertainty of the outcome and the outcome must be important. Regardless of the conditions, there will be stress only when there is uncertainty as to whether the opportunity will be seized, the constraint removed, or the loss avoided. That is, stress is highest for those individuals who perceive that they are uncertain as to whether they will win or lose, and lowest for those individuals who think that winning or losing is a certainty. Importance of the outcome is also critical. If winning or losing is an unimportant outcome, there is no stress. If keeping your job or earning a promotion is not important to you, you have no reason to feel stress in undergoing a performance review.

There are ways in which stress might lead to somatic illness, this can happen by the disruption of tissue function through neurohumoral influences under stress. Under stress there are major releases of powerful hormones that can weak

dramatic alterations in bodily processes many of which we sense as in the case of a pounding heart, sweating, trembling and fatigue, and engaging in coping activities that are damaging to health. For example, when trying to advance occupationally or socially by means of a pressured style of life, taking minimal rest, poor diet, the somatic illnesses are the likely results (Matthews, 1987).

Stress is not necessarily dysfunctional. A modest amount of stress may encourage a person to perform better, especially when working towards a deadline; it may lead to more creativity in a competitive situation and generate new ideas as a matter of necessity. However, when stress turns into distress it leads to negative consequences. Human consequences of stress include anxiety, depression and anger. Physical consequences can manifest themselves as cardio-vascular disease, headaches, accidents, drug abuse eating disorders and poor interpersonal relations. Organizational consequences of stress include reduction in the quality and quantity of job performance, increased absenteeism and turnover (Nel et al., 2004).

Several of the factors that cause stress particularly task and role demands and organizational structure are controlled by management, and can as such be modified or changed. Certain jobs are more stressful than others and individuals respond differently to stressful situations (Appley, 1986). For example, redesigning jobs to give employees more responsibility, as well as giving them autonomy and increased feedback may reduce stress because these factors give the employee greater control over work activities, however not all employees want enriched jobs as they might feel that they are being overloaded with work and as a result experience stress.

Robbins (2003) argues that from the organization's point of view management may not be concerned when employees experience low to moderate levels of stress. The reason, as we showed earlier, is that such levels of stress may be functional and lead to higher employee performance. But high levels of stress, or

even low levels sustained over long periods of time can lead to reduced employee performance and do require action by management. Although a limited amount of stress may benefit an employee's performance, don't expect employees to see it that way. From an individual's point of view, even low levels of stress are likely to be perceived as undesirable. Therefore, it is not unlikely for employees and management to have different notions as to what constitutes an acceptable level of stress on the job.

An employee can take personal responsibility for reducing his or her stress level. Individual strategies that have proven effective include implementing time management techniques, increase in physical exercise, relaxation training and expansion of the social support network. Many people manage their time poorly, the things they have to accomplish in any given day or week are not necessarily beyond achievement if they manage their time properly. According to Robbins (2004) the well-organized employee, like the well-organized student, can often accomplish twice as much as the person who is poorly organized; therefore, an understanding and utilization of basic time management principles can help individuals to cope better with tensions created by job demands.

Some of the well known time management principles are: making daily lists of activities to be accomplished, prioritizing activities according to importance and urgency, scheduling activities according to the priorities set, knowing your daily cycle and handling the most demanding parts of your work during the high part of your cycle when you are most alert and productive. Non-competitive physical exercises such as aerobics, walking, jogging, swimming and riding a bicycle have long been recommended by physicians as a way to deal with excessive stress levels. These forms of physical exercise increase heart capacity, lower the heart rate and, provide a mental diversion from work and are a means to "let off steam".

Individuals can teach themselves to reduce tension through relaxation techniques such as meditation, hypnosis and bio-feedback. The objective is to reach a state of deep relaxation, where one feels physically relaxed, somewhat detached from the immediate environment and from body sensation. According to Nel (2004) fifteen to twenty minutes a day of deep relaxation releases tension and provides a person with a pronounced sense of peacefulness. Importantly, significant changes in heart rate, blood pressure and other physiological factors result from achieving the deep relaxation condition. As noted earlier, having friends, family and work colleagues' to talk to makes for outlets when stress levels become excessive. According to Cooper (1978) expanding your social support network, therefore, can be a means to reduce tension. It provides you with someone to listen to your problems who may offer a more objective perspective on the situation. Having friends around you can help reduce stress as your friend or family is near to you and you can feel free to disclose anything with them.

1.6 Theoretical framework of the study

This study will reflect the work of other authors who wrote about stress management. The study is supported by the job demands, job decision latitude and mental strain model of Karasek and Theorell (1990) which attempts to bridge the gaps between previous theories on stress management. The model assumes that well known organizational case studies have indirectly utilized important literature findings on job demand and decision latitude. A 1948 study found that white restaurant workers experienced the severest strain symptoms when they faced ongoing heavy customer demand. It reflect overload as a factor that causes worker stress and as reflected in the statement that white restaurant workers were stressed as a result of heavy customer demand.

According to Gouldner (1974) as cited by Karasek and Theorell (1974), personal and organizational tensions increase when close supervision is applied to minders under heavy workloads. Employees become stressed when there is rigid supervision, and when they don't have control and autonomy and are not given feedback from their supervisors. Bosma et al (1998) discuss organizational strain which arises among groups of workers simultaneously facing heavy and rigid rule structures and limited decision alternatives. The model pays attention to job decision (decision authority skill, job demand and other treats "stressors" on job satisfaction and mental strain focuses primarily on job decision latitude).

According to Quinn et al 1971) as cited by Karasek and Theorell (1990) characteristics of the work environment must be analyzed to avoid misinterpretation. Quinn found that both executives and assembly-line workers could have stressful jobs, but they could not explain the differences because of the omitted variable of decision latitude for executives and workers which accounts for the differences observed in their strain symptoms and satisfaction. Another type of difficulty occurs when current definitions of "overload" (or under load) as a source of stress in the workplace. Overload is usually defined as occurring when the environmental situation poses demands which exceed the individual capabilities for meeting them. You cannot expect that a worker to load a hundred cases of drink on to a truck in 30 minutes and not overload him /her.

The model holds that psychological stress results not from a single factor in the work environment, but from the joint effects of the demand for work satisfaction and a range of decision-making latitude for workers facing the demands (Harrison, 1978). These two aspects of job satisfaction represent, respectively, the instigators of action (work load demands, conflicts or other stressors) which place the individual in a motivated or energized state of stress and the constraints on the alternative resulting action.

1.7 Research methodology

Research design is a plan according to which we select research participants, collect information from them, and describe what we are going to do with them in order to reach conclusions about the research problem. In the research design we specify the population and the sample from which the participants will be drawn and how they are going to be drawn (Babbie, 2005). Sampling is defined as the process of selecting certain members from a group to represent the entire group. In most instances, the total population is so large that it is not possible to collect data from every individual person or entity. As a result, it is scientifically acceptable to draw a sample from the entire population, and generalize the findings of the research to that particular population as being representative of the whole population (Bless and Higson-Smith, 2000).

A population refers to the entire collection of a set of objects, people and events or a collection of all the items that we want to make generalizations or conclusions about. The population is chosen because there are the participants that deal with negotiation matter like managing of work stress among blue collar workers Babbie (2007). In this study, the population will comprise of the blue collar workers in the mining sector. The sample is a subset of the observation selected from the population. It is representative of the whole population and should have the same characteristics as the population from which it is drawn. There are two types of sampling procedures: probability and non-probability sampling. This study will make use of probability sampling in which every element in the population has a known chance of being selected in the sample since probability sampling procedures allow for generalization to the entire population. Simple random sampling will be used in the study. Simple random sampling takes place when a sampling frame is available, and each unit in the population has an equal chance of being selected for the research. Quantitative research methods were used in this study. This study used questionnaires to

gather data from respondents, as it is one of the most inexpensive ways of gathering data from a large number of respondents (Bailey, 1994).

For the purpose of the study the questionnaire will be structured in such a way that it will be divided into four sections, a section on the causes of stress, a section about demographic information, a section alternative or courses of action that can be taken to minimize stressful working conditions within the working environment and lastly, a section on the consequences of work stress. The questionnaires will be self-administered by the respondents in their own spare time without any supervision. Data analysis is the process of analyzing the data to make meaning out of it. Descriptive statistics will be used to analyze the data and the analysis of the data will be done by the Department of Statistics at the University of Fort Hare.

1.8 Limitations of the study

The study is limited in that most companies in the Eastern Cape do not readily allow students to conduct their research in companies and moreover, the study mainly focused on lower level manual workers.

1.9 Conclusion

It is because of the dramatic changes that have taken place in society over the last decade or two that work and life stress have become more immediate focus of study. Organizations have spent cost millions of Rands in an effort to manage the level of stress in the workplace. This stress can be is caused by a number of factors, some are as a result of the changes made in the organization (restructuring) and new technological devices that are being used recently.

CHAPTER TWO

Stress and the causes of stress in the workplace

2.1 Introduction

For many years, an employee's health and well-being were viewed as something personal, and organizations would only intervene in extreme situations. However, the cost to an organization of problems related to an employee's health and sense of well-being can be enormous. For this reason, health and well-being have become important focus area for organizations. To achieve success, an organization depends on employees who are able and motivated to do their work. Furthermore, it is important for organizational success that employees experience good health and well-being. Well-being is the experience of good health in all areas that makes us human: physical, emotional, mental, and spiritual. Consequently, organizations, and the industrial psychologists working in them, are playing a greater part in the healthcare of employees by providing benefits and programmes to ensure a healthy and productive workforce.

2.1.1 Definition of work stress

The construct of stress is very complex. So much so, in fact, that researchers cannot agree on a single definition for stress. A number of different definitions have been advanced by different authors and researchers as indicated below:

- ❖ According to an early researcher, Hans Syle (1976) stress is primarily a psychological reaction to certain threatening environmental events. From Syle's point of view worker stress simply refers to the stress caused by events in the work environment.

- ❖ Psychologist John French and his colleagues (1982) say that worker stress results from a lack of “fit” between a person’s skills and abilities and the demands of the job and the workplace. In other words, a worker who is totally unqualified for a particular job should feel a tremendous amount of stress. For example, imagine a worker with little previous experience with computer systems applying for and being hired as a communication specialist, only to find out that the job requires a thorough knowledge of various computer networking systems.
- ❖ Lazarus (1991), in his “transactional” view of worker stress, sees stress as resulting from the worker’s perception that certain environmental events are threat or a challenge. From Lazarus’ perspective, you and I might interpret the same event very differently. What I might find stressful next person might see as it totally harmless (or perhaps even as pleasantly challenging).

In order to reach an adequate definition of worker stress, it is well to look at the three different approaches. Although we most often think of stress as an unpleasant state, it can have both negative and positive aspects. Some stress is normal. In fact, it is often what provides us with the energy and motivation to meet our daily challenges both at home and at the workplace. Such stress is of the kind that helps you “rise” to a challenge and meet your goals such as deadlines, sales or production targets, or finding new clients. Some authors do not consider this stress as stressful because, having met the challenge, we are satisfied and happy. However, as with most things, too much stress can have negative impacts.

When the feeling of satisfaction turns into exhaustion, frustration or dissatisfaction, or when the challenges at work become too demanding we begin to see negatives signs of stress. For example, imagine that you have been working for several years as an assistant manager for a large company and have just received a promotion to department manager, a position you have been

trying to obtain for some time; with your new position come feelings of stress. Some of these are negative, such as the stress that will result from:

- ❖ Having to work many overtime hours without additional compensation.
- ❖ Being required to make formal presentations regularly to your peers and superiors and having your presentation critically evaluated by them.
- ❖ Having to take responsibility for any problems occurring in your department and facing criticism for it.

Some stress researchers distinguish negative stress, termed distress, which is unpleasant (such as losing a job or being under enormous pressure at work) from positive stress, called eustress, which is pleasant (such as taking pleasure in a job well done. We are familiar with physiological reactions to stress. They include signs of arousal such as increase heart and respiratory rates, elevated blood pressure and profuse sweating. The psychological reactions to stress include feelings of anxiety, fear, frustration and despair, as well as appraisal or evaluation of the stressful event and its impact, thinking about the stressful experience, and mentally preparing to take steps to try to deal with the stress.

Stress “signals” fall into four categories: feelings, thoughts, behavior and physical symptoms. When you are under stress you may experience:

- ❖ Feelings: anxiety, irritability, fear, moodiness and embarrassment.
- ❖ Thoughts: self-criticism, difficulty concentrating or making decisions, forgetfulness or mental disorganization, preoccupation with the future, repetitive thoughts and fear of failure.

❖ Behavior: stuttering or other speech difficulties, crying, acting impulsively, nervous laughter, increased smoking, alcohol or other drug use, being prone to more accidents, increased or decreased appetite.

In many ways, stress is a perpetual process. An event that one individual perceives to be stressful may not be labeled as such by someone else. For example, making a formal presentation in front of a large audience may be perceived as extremely stressful by an average university student, but may be perceived as energizing (and perhaps fun) by a person who is accustomed to public speaking. Because stress may cause a variety of reactions and feelings, and because perceptions of stress may vary from one person to another, stress has not been particularly easy to define, and it is very difficult to measure.

❖ Physical: tight muscles, cold and sweaty hands, headaches, back or neck problems, sleep disturbances, stomach distress, more colds and infections, fatigue, rapid breathing or pounding heart and dry mouth.

According to Anshuetz, (1999) all these signs do not happen at the same time but tend to progress through several phases or stages. These stages can be described as in the table below:

Table 2.1

PHASE	SIGNS/SYMPTOMS
Phase 1 -Warning Early warning signs are often more emotional and make take a year or more before they are noticeable	• Feeling of vague anxiety • Depression • Boredom • Apathy • Emotional fatigue

Phase 2 -Mild symptoms Warning signs have progressed and intensified. Over a period of 6 to 18 months signs may also be evident.	• Sleep disturbances • More frequent headaches/colds • Muscle aches • Intensified physical and emotional fatigue • Withdrawal from contact with others • Irritability • Intensified depression
Phase 3-Entrenched cumulative stress This phase occurs when the above phase continues to be ignored. Stress starts to have a deeper impact on career, family life and personal well-being.	• Increased use of alcohol, smoking and non-prescription drugs • Marital discord • Loss of sex drive • Rigid thinking • Withdrawal • Sleeplessness • Crying spells

(From: Anschuetz, B.L. "the High Cost of Caring: Coping with Workplace Stress" in sharing: Epilepsy Ontario. Posted 29 November 1999)

Companies and managers have become more and more concerned with the effects of stress on workers and on important "bottom-line" variables, such as productivity, absenteeism, and turnover. If worker stress leads to stress-related illnesses, rates of absenteeism can increase. At a psychological level, stress can cause mental strain, feelings of fatigue, anxiety, and depression that can reduce worker productivity and quality of work. If a job becomes too stressful, a worker may be compelled to quit and find a less stressful position. Thus, worker stress may influence turnover as well.

Managers and workers may also be concerned about stress at a more personal level. Worker stress can be, in many ways, the flip side of job satisfaction which represents the “positives” associated with work; stress is a way of conceptualizing the “negatives” associated with jobs the pressure, strains and conflicts. No doubt, much of the interest in worker stress results from the fact that managers business owners and all other sorts of workers experience stress on a day-to-day basis.

2.2 Specific causes of work stress among blue collar workers

Many aspects of the work environment can induce stress. Some of these are work overload, work underload, organizational change, role conflict and role ambiguity.

2.2.1 Work overload

The term work overload is used to describe the common condition of overwork; it is divided into two, which is qualitative and quantitative overload. Quantitative overload is the condition of having too much work to do in the time available, it is an obvious cause of stress and has been linked to stress-related ailments such as coronary heart disease. The key factor seems to be the degree of control workers have over the rate at which they work rather than the amount of work itself. In general, the less control employees have over their work pace, the greater the stress. Qualitative overload involves work that is too difficult to perform. Having insufficient ability to perform a job is stressful, even employees with considerable ability can find themselves in situations where they cannot cope with the job's demands.

A study of 94 employees of an accounting firm in Britain showed that work overload was directly linked to self-reported psychological stress, burnout and the belief that work was interfering with family life (Byrne, 1993). A questionnaire survey of 241 workers in Canada showed that those who felt they had job demands that were significantly higher than those of other workers enjoyed less physical exercise than those who felt that they had lower job demands (Payne et al, 1988). The combination of high job demands and little exercise is consistent with the relationship mentioned above between work-related stress and coronary heart disease.

2.2.2 Work underload

Work underload is having too simple work or insufficient work to fill one's time or challenge one's abilities is also stressful. A study of 63 musicians in a symphony orchestra found that they sometimes face overload and underload, overload when the job tasks were too difficult, and underload when the task did not make full use of the musicians' skills (Cooper and Smith, 1985). Other researchers relate work underload to increased boredom and monotony (also a factor in stress) and to reduced job satisfaction.

Thus, an absence of challenge in the workplace is not necessarily beneficial. A certain level of job stress can be stimulating, invigorating and desirable, our goal should be to find the optimum level at which we can function and remain in good health and to avoid the extremes of work overload and work underload.

2.2.3 Interpersonal factors

One of the greatest causes of stress is difficulties in interpersonal relationships on the job. Such interpersonal stress is encountered by every worker. Interpersonal stress stems from difficulties in developing and maintaining relationships with other people in the work setting. Having a harsh, critical boss

with a punitive management style would likely be stressful for just about anyone. Interpersonal stress can also result when coworkers are placed in some sort of conflict situation. Imagine, for example, that two employees are both being considered for an important promotion. A great deal of stress may be generated if the two individuals must work together while both are competing for the same honour. All forms of harassment, including sexual harassment, harassment due to group membership (e.g. gender, race, sexual orientation), and being singled out by an abusive superior or colleague are extremely stressful.

2.2.4 Organizational change

Another stressor is change. Employees who see change as exciting and challenging are less vulnerable to stress than those who view change as a threat. It is the way we perceive or respond to change rather than the change itself, which is the cause of the stress. Many people resist change, preferring the familiar so that they will know what to expect. Consider the relationship between employees and supervisors. Once that relationship has been established, assuming it is positive, all parties feel comfortable with it because each knows what to expect from the other. The situation is predictable, safe and secure. When the supervisor leaves and employees face a new boss, they no longer know what behaviors will be tolerated, how much work will be expected, or how their job performance will be evaluated. Such changes in the work environment can be stressful.

Other stressful changes include revised work procedures, required training courses and new workplace facilities. Company mergers can lead to concerns about job security, new managers and different organizational policies. A stressful change for many older employees is the presence of younger workers and workers of diverse ethnic backgrounds that bring unfamiliar attitudes, habits and cultural values to the workplace. Employee participation in decision making and other changes in the organization can be stressful for higher level managers.

Some organizations are able to change with the cooperation and support of employees and managers. The factor most responsible for determining whether change will be received positively or negatively is the way in which change is proposed and implemented. If change is imposed on employees in an autocratic manner and they are given no explanation or opportunity to participate, then they are likely to react negatively and this negative attitude towards their work will result in stress. However, when managers make an effort to explain the nature of the forthcoming change, the reasons for implementing it, and the benefits workers and management can expect from it, then workers are likely to respond positively and accept the change. A study of 130 public housing employees showed that their openness to change was positively affected by the amount of information they received from the management and by the degree of their participation in the planning process. Employees who were the least receptive to change also showed lower job satisfaction and were likely to quit and display greater stress with aspects of their jobs (Bond and Bunce, 2003).

2.2.5 Role ambiguity and role conflict

It is surprising how often we are not given clear brief on what it is we are supposed to do, or on where our responsibilities end and those of the next person take over. One of the main problems of this lack of clarity is that often we get blamed for something that goes wrong when in fact we did not think it lay within our province at all. Some colleagues are adept at shifting blame onto us in this way. Unclear job specifications leave us vulnerable. If we do nothing we are told we should have acted. If we show initiative and act we are accused of exceeding our responsibilities or of trying to undermine colleagues or steal their thunder. This instances the classic double-bind (that unpleasant situation where every course of action open to us is wrong). Unclear role specifications also make it hard to assign priorities to our various tasks and to allocate appropriate amounts of time to each of them (Schultz, D. and Schultz, E. 2006).

An employee's role in the organization can be a cause of stress; role ambiguity arises when the scope and responsibilities of the job are unstructured or poorly defined. The employee is not sure what is expected or even what to do. This is particularly crucial for new employees, whose job guidelines may be unclear. Adequate orientation and socialization programs for new employees can reduce role ambiguity.

According to Schultz (2006) industrial psychologists have proposed three components of role ambiguity:

- ❖ Performance criteria ambiguity: uncertainty about standards used to evaluate a worker's job performance.
- ❖ Work method ambiguity: uncertainty about the methods or procedures appropriate to the successful performance of the job.
- ❖ Scheduling ambiguity: uncertainty about the timing or sequencing of work.

Role conflict arises when a disparity exists in job requirements or between the job demands and the employee's values and expectations. For example, when a supervisor is told to allow subordinates to participate in decision making and at the same time is pressurized to increase production, the supervisor faces an obvious conflict. To meet goals immediately may require authoritarian behavior, yet meeting participation goals requires democratic behavior. When the job requires behaviors that contradict an employee's moral code, such as when a salesperson is asked to sell a product that is inferior or dangerous, role conflict can develop. This salesperson can quit, but the threat of unemployment may be a greater stressor than the role conflict.

2.2.6 Lack of control

Another important cause of work stress results from workers sensing that they have little control over the work environment and over their own work behavior. Stress resulting from this feeling of lack of control is particularly common in lower-level jobs or in highly structured organizations. Jobs that are so constrained and rule-driven that employees are unable to have any sort of input in work decisions and procedures are likely to be stress inducing, particularly for those workers who want to have some input. Research indicates that providing workers with a sense of control over their work environment, through techniques such as giving them a voice in decision making processes or allowing them to plan their own work tasks, reduces work stress and increase job satisfaction (Cooper, 1978). However, it should be noted that some studies suggest that a sense of a lack of control over one's job may not be stressful for many workers. In fact, research has found that certain personality characteristics may determine whether or not an individual is stressed by a perceived lack of control.

Bandura (1997) posits to studies showing that in certain circumstances (for instance when ill or when faced with an emergency) some people find it less stressful if they have no powers of decision. They find it more soothing to have things in the hands of the experts, and not to have to agonise over which choice to make. Even in less challenging situations indecisive and highly insecure individuals may prefer to have inflexible superiors or protocols governing their lives, thus removing any need for self-determination. But for most of the time and for most people, a degree of say in one's own life lowers the levels of potential stress. At work, most individuals like to feel that they have some power to influence events, and that their personal preferences and their ideas for improving job efficiency are going to receive a hearing. The feeling of powerlessness not only detrimental to sense of status and personal worth, it produces high levels of frustration when we can recognize shortcomings in the

present system and identify a better way of doing things, yet find ourselves ignored or worse still, shouted down.

2.2.7 Poor Communication

Poor channels of communication are often a potent cause of stress. When no one knows who should be told what, or when he or she needs to be told something or when. No one seems to know how to get hold of person X or person Y at neither short notice, nor how to check that person A or person B has received a copy of the memo that has just been sent then there is trouble. Even worse, when no one seems sure how to obtain the information they need from colleagues before they commit themselves to action. Someone has the information somewhere, and should share it, no one knowing who that person is, then stress results.

The usual consequences of poor channels of communication are that people take decisions without being in possession of accurate facts, are unable to pass on important details to the relevant quarters, attend meetings inadequately briefed, and are generally left with feelings of reduced control over events. The guilty party behind all this may be an administrator who is not doing his or her job properly or someone higher up the hierarchy who has not created a proper communications system, or an inadequate internal post or telephone network, or the tendency of the job itself to disperse people to inaccessible places. But it can turn a straightforward attempt to give or receive information from a brief, low-stress task into a lengthy (and often ultimately fruitless) high-stress one (Ganster, 1991).

2.2.8 Changing technology and skills

A radical change in the workplace may stem from advances in microelectronics, in word processors, computers, and individual robots. Work environments, large

and small have become automated, with sophisticated equipment taking over functions once performed by humans. The majority of offices today use word-processing or data-processing equipment that clerical jobs requiring lower-level skills (Lazarus, 1991). All these dramatic changes in the workplace result in stress among the employees, in terms of changing the way the tasks were carried out and in some instances it may results in employees losing their jobs.

2.2.9 Diversity issues

Another change in the workplace is demographic and may involve a shift in the ethnic composition of the workforce. These days the gender composition of employees has come to include women. White workers are becoming a minority. Working with different people from different cultural backgrounds is very stressful to workers, because of different ways of doing things, the language too may be problem. Up to 800,000 immigrants enter the United States every year. Most of them are eager to work, but many lack English-language training and other literacy skills. They may also be unfamiliar with corporate work habits. This then presents an additional challenge to the business industry.

2.3 Additionally, stress may also be caused by either the environment (situational stress) or an individual's personal characteristics (dispositional stress).

2.3.1 Environmental Psychology and Landscape Offices

The field of environmental psychology is concerned with the relationship between people and their physical environment. Combining architecture and psychology acknowledges the impact of natural and built environments on behavior. For example, research on office design and layout has focused on communication between and within departments, flow of job tasks among groups, relationships between managers and subordinates, and group cohesiveness. One early result

of environmental psychology research was the landscape office. In contrast to private, separated offices, the landscape office consists of a huge open space with no floor-to-ceiling walls to divide them into separate rooms. All employees, from clerks to corporate officers, are grouped into cubicles, functional work units that are set off from others only by planters, screens or partitions, cabinets and bookcases (Riggio, 2003).

Inexpensive to construct and maintain, landscape offices are believed to facilitate communication and work flow. The openness is supposed to enhance group cohesiveness and corporation and reduce psychological barriers between employees and managers. However, research on employee reaction has revealed both advantages and disadvantages. Employees report that landscape offices are pleasant and conducive to socializing. Managers report improved communication. Complaints relate to lack of privacy, noise, and difficulty in concentrating result in stress. Because cubicles are typically separated only by low dividers, work areas tend to lack personal touches such as photos, plants, posters and souvenirs that contribute to a feeling of individuality and comfort (Selye, 1976). Despite these problems with landscape offices, many organizations have invested considerable money in them and are reluctant to bear the additional expense of reconverting them into more private offices. For companies with large numbers of employees at computerized work stations, the landscape office has become standard.

As real estate costs escalate, organizations are trying to squeeze more employees into smaller facilities. This is not conducive for those employees who need their privacy or are not comfortable with closed spaces. The size of the typical office cubicle or individual work station is steadily shrinking. Some employees who travel frequently no longer have a permanent assigned work area but only a temporary space. For example, consultants who spend much of their time on-site at a client's workplace will phone ahead of time to reserve a

cubicle for their next visit to the home office. Because the practice is not unlike booking a hotel room, it has come to be known as hotelling.

In addition to studying general issues of workplace design, Industrial psychologists have conducted extensive research on specific environmental factors such as lighting, noise and temperature. These aspects of the work environment are analogous to the hygiene needs proposed by Herzberg. All of these environmental factors have been found to affect job satisfaction. Continued exposure to inadequate illumination while reading or performing detailed operations can be stressful to one's eyesight. Research confirms that inadequate lighting is a cause distress. High glare, dim bulbs, and a lack of natural light have negative effects on job performance (Bosma, 1998).

The Herzberg model of motivator-hygiene theory (two factor) supports the idea that all environmental factors (such as lighting, noise and temperature) affect job satisfaction. The model argues that job dissatisfaction is produced by hygiene needs (lower needs). The word hygiene relates to the promotion and maintenance of health. Hygiene needs are external to the tasks of a particular job and involve features of the work environment such as company policy, supervision, interpersonal relations, working conditions, and salary and benefits.

When the hygiene needs are not satisfied, the result is job dissatisfaction. However, when the hygiene needs are satisfied, the result is not necessarily satisfaction, merely an absence of dissatisfaction. The hygiene needs are similar to Maslow's physiological, safety, and belonging needs. Both Maslow and Herzberg insisted that these lower needs be satisfied before a person can be motivated by higher needs (Baruch-Feldman, 2002).

According to Schultz et al (2006) intensity, or level of brightness, is the most common factor associated with illumination. The optimal level of intensity varies with the nature of the task and the age of the worker. Older workers generally

need brighter light than do younger workers for satisfactory performance of the same task. A job involving the precise manipulation of small component parts, as in electronic assembly, requires brighter light than an assembly line in a bottling plant. Lighting engineers have recommended minimum intensity levels for a variety of work areas including office buildings. Another important factor in illumination is the distribution of light over the work area. Ideally, lighting will be distributed uniformly throughout the visual field. Illuminating a work station at a much higher intensity than its surroundings leads to eyestrain because of the natural tendency of the eyes to move. When a person looks from a brightly lit area to a dimly lit area, the pupils of the eye dilate. Returning the gaze to the brighter area cause the pupils to contract, this constant reaction of the pupil leads to stress.

When you are sitting at your desk, you should have overhead lighting as well as a desk lamp focused on your work. This arrangement will give a uniform distribution of light throughout the room. Similarly, it is less fatiguing to the eye to have additional lighting in the room where you are watching television or looking at your computer screen. Uniform illumination throughout a work area can be provided by indirect lighting in which all light is reflected. Thus, no light will strike the eyes directly. In contrast, direct lighting, with bulbs located at various points in the ceiling, tends to focus or concentrate the light on specific areas, causing bright spots and glare.

Noise is a common factor in modern life that causes stress among employees. Noise makes us irritable and nervous, interferes with sleep, and produces physiological effects such as hearing loss. Noise is a documented occupational hazard for industrial employees such as riveters, boilermakers, aircraft mechanics, and foundry and textile workers. Businesses have been faced with employee claims of hearing damage totaling millions of Rands each year. The National Institute of Occupational Safety and Health (NIOSH) reports that 30 million Americans are routinely exposed to noise levels that eventually will affect

their hearing. NIOSH also estimates that at least 20 per cent of U.S. employees work in environments that can endanger their hearing. For example, more than 90 per cent of coal miners report hearing loss by age 50. At least 75 per cent of farmers suffer hearing impairment from continued exposure to noisy farm machinery.

The president of the National Hearing Conservation Association asserts that "Hearing loss is one of the most common workplace conditions" (Schultz et al, 2006). The basic unit for measuring noise is the decibel (db), which is a measure of the subjective or perceived intensity of a sound. Zero db is the threshold of hearing, the faintest sound most of us can hear. Some loudness levels are threats to hearing. A worker exposed regularly over a long period to decibel levels above 85 can expect to suffer from stress. Exposure to levels over 120 db can cause temporary deafness. Brief exposure to levels in excess of 130 db can cause permanent deafness. The U.S. government has established maximum permissible sound levels for industrial workers: exposure to 90 db for an eight-hour day, 100 db for a two-hour period, and 110 db for a 30-minute period.

When people are exposed to sounds in the 95 to 110 db range, blood vessels constrict, heart rate changes and the pupil of the eye dilate and all this result in causing stress to workers. Constriction of the blood vessels continues for some time after the noise ceases, a condition that alters the blood pressure and muscle tension. High noise levels impair emotional well-being and induce stress. In a study of 40 women workers, three hours exposure to the noise of a typical open-office arrangement produced measurable physiological signs of stress. The noise also reduced the employee's motivation to work (Evans, & Stepoe, 2001). A study of the physiological effects of high noise levels tracked blood pressure changes in workers in Israel over a four year period. It was found that workers with more complex jobs showed greater increase in blood pressure than those with less complex jobs (Monat and Lazarus, 1977).

Noise interferes with communication. If the background noise in an office is low (between 50 and 60 db), then two people can conduct a conversation without raising their voices at a distance of up to five feet. As the background noise level rises, workers must talk louder or must leave their work stations and come closer together to be heard. The decibel level of the average factory forces workers and supervisors to shout. It is likely that important information is lost in transmission.

Table 2.2 The table below shows decibel levels in familiar situations

Decibel Levels for Familiar Sounds	
Source of Noise	Decibel Level
Breathing	10
Whisper from 15 feet away	30
Quiet office	40
Conversation 3 feet away	70
City traffic	80
Kitchen appliances	95
Average factory	100
Power lawnmowers	110
Crying babies	110
Noisy restaurant	110
Pneumatic hammers 3 feet away	120
Electronically amplified rock band	140

Source: Survey reported in St. Petersburg (FL) Times, August 22, 2002.

Exaggerated claims have been made about the benefits of color for homes, offices and factories. It has been suggested that certain colors increase productivity, reduce accidents, and raise employee morale. These claims are not supported by empirical evidence, and there is no validity to any purported relationship between a specific color and productivity, fatigue, or job satisfaction.

However, there is a role for color in the workplace. Color can provide a more pleasant working environment and can be an aid in safety practices. Color is used in many manufacturing plants as a coding device. Fire equipment is red, danger areas yellow and first-aid stations green. Color-coding allows these areas to be identified quickly. Color can prevent eyestrain which causes stress to employees because colors differ in their reflective properties. A white wall reflects more light than a dark one. Thus, the appropriate use of color can make a workroom or office seem brighter or darker.

According to Schultz (2006) colors also create different illusions of size. A room painted a darker color seems smaller than it actually is. Light-colored walls give the feeling of space and openness. On U.S. Navy submarines, the 24 trident missiles tubes, which run through all four decks, are painted reddish orange. The color is darker for tubes at one end of the ship than the other to create the illusion of depth. This makes the cramped quarters appear more spacious than they are. The captain of the USS Tennessee told an interviewer, "That's the psychologists looking out for us." Moreover, physical conditions in the work environment are an organizational cause contributing to work stress. Jobs that must be performed under extreme temperatures, loud noise or poor lighting or ventilation can be quite stressful.

Dangerous jobs placing workers at a risk of loss of health, life or limb are an additional cause of work stress. Studies have shown that noise levels in open-space office environments (partitioned cubicles and open ceilings) constituted a significant cause of stress. Similarly, working late night shifts can disrupt natural sleep and waking cycles and may lead to problems such as high stress, fatigue, job dissatisfaction and performance errors (Riggio, 2003).

The physical work environment includes many factors, from the size of the parking location and location of the building to the amount of natural light and noise in the work area. Inadequate parking space or a parking lot far from the

building can be so stressful to employees that their attitude toward the organization is negative before they even reach their work situation. The location of the work site, whether in the downtown area of a large city or in a more remote suburban area, can also affect employee's satisfaction with their jobs. For example, suburban office parks are often isolated from the shops, restaurants and other services found in cities. Surveys show that young, single employees typically prefer to live and work in cities, whereas married people tend to prefer the quieter suburbs as better places to work and rear children.

Parker et al (2001) have suggested that many organizations offer various amenities to attract and retain dedicated employees. Some companies have turned themselves into vacation resorts with on-site spas, gyms, nurseries, shops, banks, and medical clinics. Why would organizations spend money on what used to be considered frills? At the luxury-laden Citicorp complex in Tampa, Florida, an employee said, "You spend so much of your life at work; it's nice that you can have things like a fitness center or child-care facility. For me, it builds loyalty." And loyal employees are less likely to quit, take time off or be sloppy about their work as a result of stress.

Once inside the place of employment, we may find other physical features that create frustration or stress. One cause of complaints is the ventilating, heating and air-conditioning systems in glass-wall, fixed-window buildings. Temperatures are often uncomfortably hot on the sunny side of the building and too cool on the shady side. Other irritants are slow elevators in high-rise buildings, the quality of the food in the company cafeteria and inconvenient or poorly maintained restrooms. Office size and design can be stressful to employees and as a result affect the employee's performance. The layout of a set of offices will affect the behavior of managers who rely on spontaneous encounters as a way of obtaining and exchanging information. The physical separations, such as placing suites of

management offices on different floors of a building, decrease the amount of contact

The size of an office building can influence the working relationships, in the sense that the smaller the building, the closer the relationships among employees tend to be. In very large buildings, where employees have fewer interactions, relationships tend to be more formal and impersonal. All these factors, none of which involves actual job tasks, can impair productive efficiency. An unpopular location, poor design or inconvenient layout can be reduce the morale of the employees and lead to stress.

Workplace design and location are especially critical for disabled employees who may be barred from certain jobs not because of lack of ability, but because they do not have access to the work area. Steep flights of stairs, narrow doorways and inadequate restrooms may prevent them from being employed. The 1973 Rehabilitation Act and the 1990 Americans with Disability Act require the removal of architectural barriers. All parts of a building must be accessible to persons in wheelchairs. Compliance with the law has meant modifications to the physical plant, such as automatic doors, ramps and elevators, handholds also wider doorways and corridors and lower wall telephones and speakerphones. Surveys show that 60 per cent of these required changes cost less than \$100 and 90 per cent of them cost less than \$1, 000. Many disabled employees do not require any physical modifications to an office workspace. IBM, which has hired disabled workers for more than 40 years, took the lead in redesigning work stations to provide job opportunities for these employees (Krakowski, 1982).

Situational stress can come from all aspects of our lives. We are subject to a wide range of stressors, at home, at school, at university, and in our interpersonal relationships, as well as stressors we encounter at work. No doubt, all of these various causes of stress accumulate and add to our overall stress levels. That is, stress home can spill to the work situation, and vice versa. Most

stress researchers realize this so that when studying stress, it is important to look at the broad picture of an individual's total stress, rather than to focus narrowly on stress derived from work.

2.3.2 Stressful occupations

It is generally believed that certain occupations, such as traffic controller, physician, and other health care providers, police officers and firefighters are particularly stressful. For example, studies of air traffic controllers indicate that they do indeed experience high levels of work-related stress, as do medical doctors (Krakoski, 1982). Police officers and firefighters are particularly stressful jobs because of the physical dangers involved. We saw the dangers associated with these jobs during and after the September 11, 2001 tragedy. The day-to-day dangers facing police officers and firefighters are indeed stressful. However, some studies suggest that causing stress, the excitement and challenge of dealing with physical danger may actually be motivating and "enriching" to many police officers and firefighters (Riggio, 2003).

2.3.3 Work-family conflict

Both men and women report conflicts between demands of family and the demands of the job, but the difficulties are usually greater for women. Work-family conflict has been documented for workers in many countries. However, the intensity of that conflict may vary from one culture to another. This was demonstrated in a large-scale study of managers (from Hong Kong, U.S.A, New Zealand, Anglo cultures and England). The researchers suggested that "Anglos view working extra hours as taking away from their families, which may provoke feelings of guilt and greater levels of work-family pressure." Employees in the other cultures were more accepting of the necessity of working longer hours because, in general, earning a living was more difficult (Schultz et al, 2006).

The stressors associated with work-family conflict are apparently independent of type of job and working conditions, as they affect managerial as well as non-managerial employees. As you might expect, women are reported to be more affected than men by work-family conflicts, primarily because so many women come home from work to their second job, caring for their children and spouse and managing their household. In general, women with paying jobs outside the home enjoy better health than full-time homemakers. Employed women score higher on measures of psychological well-being and have a lower risk of cardiovascular illness. The psychological and physical health advantages for employed women are greater for women in high-status careers (Fontana, 1989).

2.4 Individual causes of work stress or dispositional stress

While a great deal of work stress is created by factors in the organization or by features of jobs and work tasks, some is caused by characteristics of the workers themselves. We will consider individual causes of work stress. We have type A and type B behavior patterns in terms of susceptibility to stress (Schultz, 2006).

2.4.1 Type A behavior pattern

Personality factors have been related to our tolerance of stress. This relationship is particularly apparent with type A and type B personalities and their differential susceptibility to heart disease is a major consequence of stress. Although specific physical factors such as smoking, obesity, and lack of exercise are implicated in heart disease, they may account for no more than 25 percent of the cases. The rest may be linked to aspects of the type A personality pattern. In contrast, types Bs rarely have heart attacks before the age of 70, regardless of the nature of their jobs or their personal habits. Research has found that type A was 70 per cent more likely to suffer from coronary heart disease than type B (Ganster, 1986).

Two primary characteristics of the type A personality are highly competitive drive and a constant sense of time urgency. Type A is described as intensely ambitious and aggressive, always striving to achieve, racing against the clock, rushing from one self-imposed deadline to another. They are attracted to high-stress, fast-paced, competitive and demanding jobs. Type As are thought to be in a continual state of tension, perpetually under stress. Even when their work environment is relatively free of stressors, they carry their own stress as a fundamental part of their personality. Type As also tends to be extroverted and high in self-esteem. They show a high level of job involvement and score high in the needs for achievement and power. The following are some of the typical type A behaviors:

- ❖ Always do everything rapidly, they eat, walk, move and talk at a rapid pace.
- ❖ Become extremely impatient with the speed at which things are accomplished.
- ❖ Feel guilty when they are on a vacation or try to relax for a few hours.
- ❖ Always try to schedule more events and activities than they can properly attend to.
- ❖ Have nervous gestures or tics such as clenching their fists or banging on a desk to emphasize a point they are making.
- ❖ Consistently evaluate their worth in quantitative terms.

The Type B personality may be as ambitious as type As, but have few of the other's characteristics. Type Bs experience less stress at work and at leisure. They may work as hard and in equally stressful environments, but they suffer fewer harmful effects. An important question is how does type A behavior relate to stress and to stress-related heart disease?

- ❖ Early research on type A behavior hypothesized that it was the type A's hard-working, competitive drive that caused stress and subsequent heart problems (Roseman et al, 1964).
- ❖ Later research, however, suggested that the type A's underlying hostility, and lack of appropriate expression of that hostility, is partly responsible for their stress (Smith & Pope, 1990).
- ❖ Others suggest that the more global construct "negative affectivity" or the expression of negative emotions, such as anger, hostility, anxiety, impatience and aggression is what combines with a type A personality to increase stress-related health risks (Ganster et al, 1991).

Do type A's experience more stress than others? Research has produced mixed results into this question:

- ❖ Some studies indicate that type A's are more likely to experience or report high stress than other personality types under the same workload (Payne et al., 1988).
- ❖ Other studies show that type A's do not report or experience greater stress, but simply have stronger physiological stress reactions to stressful situations (Ganster, 1986). Perhaps the subjectivity experience of stress has less negative influence on health than the physiological responses. In other words, type A's may have stronger stress-induced physiological responses that they are not necessarily aware of, and it is this strong physiological response over time that leads to increased risks. If this is the case, type A's may simply not realize that their long, intense work style is creating wear and tear on their bodies.

2.4.2 Susceptibility/resistance to stress

Another dispositional cause of stress may stem from the fact that some person is simply more susceptible to stress while others have stress-resistant, hardy personalities. Hardy personality types are types that are resistant to harmful effects of stress because of their style of dealing with stressful events. Rather than viewing a stressful situation as a threat, they view it as a challenge, and derive meaning from these challenging experiences. Moreover, they also believe that they can control and influence the course of their lives and are committed to their jobs. Conversely, a lack of hardiness is associated with higher levels of self-perceived stress, and there is evidence that such “unhardy” or “disease-prone” persons may be more susceptible to stress-related illness and depression (Friedman & Booth-Kewley, 1987). Thus, it may be the case that certain types of workers are more “stress-prone.” That is, they are more likely to suffer stress-related physical illness and psychological symptoms (depression and anxiety) than are more hardy workers.

2.4.3 Self-efficacy, Locus of control and Self-esteem

Self-efficacy refers to the belief in one’s ability to accomplish a task. It refers to an individual’s belief in his or her abilities to engage in a course of action that will lead to desired outcomes. In other words, self-efficacy is related to one’s sense of competence and effectiveness. People who are high in self-efficacy are less bothered by stress than people who are low in self-efficacy. People with an internal locus of control believe that job performance, Pay, and promotion are under their control and dependent on their own behaviour. People with an external locus of control believe such events depend on outside forces such as luck (Friedman and Booth-Kewley, 1987).

The personality variable of internal versus external locus of control influences a person's reaction to stress. People who rate high in internal control believe that they can influence the forces and events that shape their lives. People who rate high in external control believe that life is determined by other people and by outside events and forces such as luck and chance. A study of 36 nurses in Germany found that those who score high in external locus of control reported experiencing higher levels of stress and burnout on the job than those who score high in internal locus of control (Schmitz, Neumann & Opperman, 2000).

Self-esteem, which is familiar to self-efficacy, refers to how we feel about ourselves. In the workplace this concept is referred to as organizational-based self-esteem (OBSE). People high in organizational-based self-esteem have a high sense of personal adequacy and see themselves as important, effective and worthwhile members of their organization. Research shows that people low in organizational-based self-esteem are more affected by stress than people high in organizational-based self-esteem. Workers low in OBSE is likely to be more susceptible to the effects of role conflict (a major workplace stress) and poor support from their supervisors. Low OBSE workers also tend to be more passive in coping with stress.

2.4.4 Sex differences

The relationship between gender, work and stress is complex. Several factors appear to magnify the impact of stress on women, chief among them being the preponderant role that women still play in the provision of family care. It is well-established that the total workload of women who are employed full-time is higher than that of full-time male workers, particularly where they have family responsibilities. Research carried out in Sweden found that the total workload of women employed full-time is much higher than that of men employed full-time,

and that the total workload for women employed part-time is as much as that of men employed full-time. Sweden is a country in which 86 per cent of women are in the workforce, but the division of labor between spouses at home has remained much the same. Selye (1976). In addition to their family responsibilities, other factors also tend to make women more vulnerable to work-related stress. These include:

- ❖ lower levels of control in their jobs, since the great majority of women still tend to occupy fewer jobs than men
- ❖ the higher proportion of women who work in precarious forms of employment
- ❖ the proliferation of women in high-stress occupations, such as nursing and teaching
- ❖ the prejudice and discrimination suffered by many women who are in more senior positions, such as managerial jobs, both as a result of organizational and corporate policy and from their colleagues at work.

Women consistently report higher levels of job stress than men do. Research has shown that women employees report headaches, anxiety, depression, sleep disturbances and eating disorders more frequently than men do. Women also report more smoking and alcohol and drug use in response to workplace stress. Women in highly stressful jobs are more likely to experience spontaneous abortion and shorter menstrual cycles than are women in less stressful jobs. On the positive side, women are more likely than men to take advantage of social support networks to help them cope with stress. Women homemakers also experience high levels of stress. According to Lazarus (1991) the demands of family and the roles of wife and mother can lead to overwork, to dissatisfaction and a sense of loss of control and to conflict with the need to seek employment

outside the home. Many women homemakers report feeling depressed, believing that more demands are placed on them than on women with paying jobs.

2.4.5 Other stressors

Supervisors and managers can be major causes of stress to their subordinates. Research confirms that poor leadership behaviors, such as when supervisors fail to be supportive of their employees or refuse to allow participation in decision making can lead to stress. Career development such as when an employee fails to receive an anticipated promotion may also lead to stress. If career aspirations are not satisfied, frustration can be intense. Over promotion can be stressful when employees are advanced beyond their level of competence to positions with which they cannot cope, leading to qualitative overload. The fear of failure on the job can induce considerable stress. Performance appraisal is a cause of stress, few people like being evaluated relative to others. Also, a poor evaluation can have a significant impact on one's career (Muntaner and O'Campo, 1993).

Taking responsibility for subordinates can be a stressor for supervisors and managers. Evaluating employees for salary, promotion, or termination decisions; providing incentives and rewards; and managing their output on a daily basis can lead to stress. Managers are much more likely to report stress-related physical complaints than employees such as accountants whose daily responsibilities do not include supervising others. The use of computers can also be a cause of stress. A study in Sweden of 25 employees between the ages of 18 and 24 showed that they had misgivings about using computers despite recognizing their advantages. They reported that computer access generally improved the quality of life but that computers also had negative stress effects related to work and information overload, and a lack of personal connection to other people (Hamilton et al, 1998).

They also believed that computers demanded that they always be available to respond quickly to e-mail and to information on the internet (Gustafsson, Dellve, Edlund & Hagberg, 2003). A study of computer use in Austria involved 26 people using the internet. The researchers found that interruptions and delays in system response time during online searches produced signs of physiological stress including increased heart rate and increased emotional activity as measured by skin conductance (Trimmel, Meixner-Pendleton & Haring, 2003). A person otherwise free of stress on the job can be adversely affected by a boss or co-worker who is experiencing stress (a so-called stress carrier). The anxiety exhibited by one stressed employee can easily affect other people. A study of 109 women working in a variety of jobs showed that interpersonal conflicts outside the workplace were perceived as not nearly so stressful.

A survey of 458 workers in Britain showed that temporary employees report lower levels of stress than permanent employees. The researchers suggested that the temporary contract employees were less likely to experience stressful conditions such as having to participate in decision making, and role overload or role conflict (Parker, 2001). Assembly-line work is associated with stress because it is repetitious, monotonous, and noisy and lacks challenge and control. Other physical working conditions that are common causes of stress are temperature extremes, poor lighting, shift work and indoor pollution. Computer controlled performance monitoring can be stressful. Machine pacing of mail sorting and other repetitive keyboard tasks increases stress and is related to absenteeism, poor performance and muscle fatigue. Automated monitoring of keystrokes and keyboard time is stressful, like having an ever-vigilant supervisor constantly looking over one's shoulder.

2.4.6 The September 11th Attacks

A nationwide survey of workers in the United States conducted a few days after the terrorist attacks in New York and Washington D.C., on September, 11, 2001,

found that 90 per cent of those polled reported having one or more symptoms of stress. Additional research conducted in the United States and in other countries after the event showed that the stress reaction attacks did not necessarily persist. One online questionnaire survey of 5,860 employees taken three months later found that the most prominent reactions were fear, denial and anger. The anger was not directed toward the terrorist but toward what the employees believed was their company's lack of attention to employees' emotional needs and personal safety. Employees reported a low post 9/11 level of trust in their immediate supervisors. In addition, women, people with children, and people who lived within 150 miles of the World Trade Center in New York City experienced higher reported stress reactions immediately following the tragedy than others (Schultz, 2006).

A large multinational corporation was in the midst of conducting its annual employee survey at the time of the attacks, thus affording a unique opportunity to assess attitudes immediately before and after the event. More than 70,000 employees were included at locations in the United States, Western Europe, Asia, Latin America, Australia, and South America. The results showed no evidence of significant change in employee attitudes or feelings about their jobs or organizations, or in personal stress reactions, from the period before to after the attacks. We note, however, that none of the employees in question was located in New York or Washington, D.C. where the attacks occurred ().

2.5 Working schedules as a cause of stress among workers

A vital aspect of the overall work environment is the amount of time we spend on the job. There is no standard universal work schedule. The 40-hour workweek common in the United States is not the norm in every country. Americans spend more hours on the job almost two weeks longer each year, than workers in Norway. Not only do Americans work more hours, they also take fewer annual vacation days. A survey of 1,000 employees conducted by Expedia found that

12 per cent of them did not plan to take any vacation days. On average, U.S. workers receive 16 vacation days per year but take only 14 of them. This contrasts with the vacation policies of other nations: Italy, 42 days, France 53, and Germany, 35 days (Schultz et al, 2006). The number of hours an employee works for has an impact on the well-being of employees. Employees who work for long hours are more likely to experience stress than employees who work normal hours, which is a maximum of 45 hours per week in the South African context.

In general, blue collar workers work longer hours than employees at other levels but seem to be rewarded less for their effort. A survey of 47 male blue collar workers showed that they averaged a 56.4 hours' workweek, and 28.6 per cent of them worked more than 61 hours per week. Those who worked for longer hours reported significantly lower job satisfaction and less job involvement. They experienced feelings of alienation from their family and a high level of work-family conflict (Byrne, 1993).

2.5.1 Shift work

Many industries operate around the clock. Workers in electric and natural gas utilities, transportation, steel, automotive assembly, hospital services and telecommunication typically work one of two shifts, usually 7.00 a.m. to 3.00 p.m. or 3.00 p.m. to 11.00 p.m. Some companies assign workers to one shift permanently, whereas others rotate assignments, switching workers each week or months to a different shift. Employees working evening or all-night shifts usually receive extra pay to compensate for the inconvenience of the working hours, but the question is how does shift work cause stress to employees? Research shows that workers are less productive on the all-night shift than on the day shift. They are also prone to make errors and to have more serious and this lead to stressful conditions for all-night workers. Nuclear power plant accidents in the United States and in Russia occurred during the night shift. A

nuclear power plant in Pennsylvania was closed by the Nuclear Regulatory Commission when night-shift control room personnel were found to be asleep on the job.

A study of 1, 867 oil industry employees in Britain found that shift workers reported greater levels of stress, increased exposure to adverse and risky working conditions, lower feelings of job control, less social support from the supervisors, and higher levels of conflict at work than those who worked regular hours during the standard workday (Parker, 2001).

2.6 Psychological and Social issues

Other important factors in the work environment relate to the nature of the job and its impact on employees. We have noted earlier that the design of the job can affect the workers motivation and satisfaction and as a result lead to stress. Some quality-of-work-life programs have been successful in improving morale and motivation, but jobs designed to be so simple that they make no demands on our intelligence, need for achievement, and attention will lead to boredom, fatigue and stress.

2.6.1 Job Simplification

Simplified, fragmented, and repetitive work affects the mental and physical health of employees. For example, assembly-line workers complain more about their physical health and visit company medical facilities more often than workers who do less repetitive work. Psychologists suggest that people who hold such jobs on a rigid work schedule are more anxious, depressed, and irritable than workers doing the same kinds of jobs on a more flexible schedule. Simplified and repetitive work can lead to a deterioration in cognitive functioning usually associated with old age. These workers are prone to absentmindedness and disorientation.

Job simplification dates from the beginning of mass production systems in the early 20th century. If relatively expensive consumer goods such as automobiles were to be produced cost-effectively in sufficient quantities to meet consumer demand, then old-style production methods, such as building each unit by hand would have to change. Mass production called for product consistency and standardization so that parts would be interchangeable. It also required specialization of job tasks. It was no longer economically or technically feasible for one person to make an entire product. The work had to be meticulously divided so that each worker produced only a small part to the finished product. The ideal was to reduce every manufacturing process to the simplest elements that could be mastered by an unskilled or semiskilled employee (Schultz et al, 2006).

2.6.2 Fatigue

Psychologists have described two types of fatigue: psychological fatigue which is similar to boredom and physiological fatigue, which is caused by excessive use of the muscles. Both types of fatigue can cause poor job performance and lead to errors, accidents, absenteeism and finally to stress. Prolonged or heavy physical labor produces measurable physiological change. People whose jobs require heavy lifting and hauling consistently show cardiovascular, metabolic, and muscle fatigue as well as decline in the ability to maintain their initial productivity level.

Psychological or subjective fatigue is more difficult to assess but is no less disturbing to employees. We are all aware of experiencing strain, irritability, and weakness when we are excessively tired and we may find it difficult to concentrate, think coherently, and work effectively. On-the-job research has shown that productivity parallels reported feelings of fatigue. Reported high fatigue is a reliable indicator of imminent that production decline. With most

physically demanding work, employees say that they are most tired at the beginning of the work period, just before the lunch break, and again at the end of the workday. Thus, fatigue does not build up over the course of the work period but appears and disappears throughout the working hours. This suggests that factors other than physical labor (motivation, for example) can influence feelings of fatigue. It often happens that a person leaves the job at the end of the shift feeling exhausted but finds that the fatigue disappears on arriving home and anticipating some pleasure activity.

Research conducted in the Netherlands on 322 university employees and 555 nurses showed that as the demands of a job increase, greater feelings of job control will reduce fatigue. Also, as the demands of the job increase, reported feelings of fatigue can lead to a decrease in job satisfaction and cause stress (Van Yperen, & Hagedoorn, 2003).

2.6.3 Ethnic Harassment

Another social-psychological condition of the workplace that causes stress is on-the-job harassment, whether based on race, ethnicity, gender or other personal characteristics. Harassment may come from co-workers, supervisors, or it may be part of the corporation culture. The population of a typical workplace, like the population of many a nation, has become increasingly diverse. As organizations employ more people of various racial and ethnic groups, harassment is on the rise. Ethnic harassment is an obvious cause of stress. It may be manifested at work as slurs or derogatory comments about a person's racial or ethnic group and may result in the exclusion of a person from work groups or social activities (Schultz et al, 2006).

A study of 575 Hispanic men and women provided evidence of harassment on the job. Verbal slurs, derogatory comments, and offensive ethnic jokes were found to be more common than behavior intended to exclude a person on ethnic

grounds. People who were targets of verbal harassment reported a lowering of their sense of psychological well-being.

2.6.4 Gender Harassment

Women employees at all levels in an organization face harassment on the job, ranging from suggestive remarks and obscene jokes to threats of job loss and physical assault. A distinction can be made between sexual harassment and gender harassment. Sexual harassment involves unwanted sexual attention and coercion. Gender harassment refers to behavior that reflects an insulting, hostile, and degrading attitude toward women. Thus, gender harassment does not necessarily involve sexual harassment. Gender harassment is directed toward all women, whereas sexual harassment is targeted at a specific woman. These two types of harassment result in stressful conditions among the employees, facing including co-workers.

A review of harassment claims filed with the Equal Employment Opportunity Commission (EEOC) showed that several types of companies were likely to be the target of lawsuits because they ignored reports of harassment. These include family-owned businesses, firms too small to maintain a human resources department, or personnel department, factories located in rural areas, and so-called male-dominated industries such as construction. Younger women in low-level jobs, single or divorced, and women in predominantly male environments report more harassment than do middle-aged or older married women whose jobs are not in male-dominated organizations (Schultz et al, 2006).

A meta-analysis of gender differences in defining harassment involved 62 research studies. Women perceived a wider range of behaviors as potentially harassing than did men. For example, 89 per cent of women perceived sexual touching as harassment; only 59 per cent of men shared that view. Men were significantly more likely to believe that physical sexual contact initiated by a

woman was a compliment; women were more likely to believe that physical sexual contact initiated by a man was a threat and an instance of harassment.

2.7 Performance Appraisal as a cause of stress

The overall purpose of performance appraisal is to provide an accurate and objective measure of how well a person is performing the job. On the basis of this information, decisions will be made about the employee's future with the organization. In addition, performance evaluations are often used to validate specific selection techniques. Thus, there are two broad purposes for conducting performance appraisals; (1) administrative, for use with personnel decisions such as pay increase and promotions, and (2) research, usually for validating selection instruments. Any unfair or biased appraisal can lead to stress for employees who feel that they have been unfairly appraised.

Most people believe they should be rewarded for above average or excellent performance. For example, in your college work, fairness dictates that if your performance on an exam or term paper is superior to that of others taking the course, you should receive a higher grade. If everyone receives the same grade regardless of academic performance, there would be little incentive for continued hard work. In employing organizations, rewards are in the form of salary increase, bonuses, promotions and transfers to positions providing greater opportunity for advancement. To maintain a stress free working environment organizations should see to it that employee are rewarded for good work done as this boosts their morale (House, 1981).

Moreover, employees should be given the feed-back about the appraisal of their job competence and their progress within the organization. Industrial Psychologists have found that this kind of information is crucial to maintaining employee morale; appraisals can also suggest how employees might change certain behaviors or attitudes to improve their work efficiency. This purpose of

performance appraisal is similar to that of improving training. In these instances, however, a worker's shortcoming can be altered through self-improvement rather than through formal training. Knowledge of what is expected of them, how they are doing and how they might improve can all help to avoid stressful conditions.

2.8 Conclusion

Stress is caused by a number of factors within the working environment. It can either be caused by the individual factors or the organizational factors. Individual factors may include divorced families, high pressure because of having a lot of responsibility between work and home, and the organizational factors include work overload, repetitive tasks, poor management, lack of support from both the co-workers and the management.

CHAPTER THREE

Managing and minimizing work stress among blue collar workers

3.1 Introduction

Stress on the job creates high costs for businesses and institutions, reducing morale, productivity, and earnings. Organizational stress management interventions include altering the organizational climate, providing treatment under employee assistance programs (EAPs) while stress can also be minimized by the employees themselves through some relaxation training programs and behavior modification. Managing stress is not synonymous with reduced productivity. Many of those who are not aware of the true nature of stress often mistakenly think that managing stress in the work environment is the same as reducing productivity. This is not the case (Powell and Enright, 1990).

There is a tremendous variety of strategies and techniques designed to manage work stress in the workplace. As I have indicated earlier workers themselves can manage their stress levels. Schultz et al (2006) say there are organizational and individual strategies that can be implemented by organizations in order to manage work stress effectively.

3.1.1 Individual's strategies of managing work stress

Individual strategies are behavioral or cognitive efforts made in an attempt to manage internal demands and conflicts that have exceeded an individual's usual coping resources. The most obvious of such techniques are programmes developed to improve the individual's physical condition, such as exercise and diet plans. The primary rationale behind such health programs is to make the body more resistant to stress-related illnesses. Another individual managing strategy is the inducement of states of relaxation to reduce the negative arousal

and strain that accompanies stress. A variety of techniques have been used to achieve this, including relaxation training, mediation and biofeedback (Byrne, 1993).

In relaxation training individuals are taught to concentrate on one part of the body after another, systematically tensing and relaxing the muscles. By focusing on the sensations produced by the relaxed state, they can achieve progressively deeper relaxation. According to Schafer (1987) psychologists have proposed several refinements of this basic technique. In autogenic training, subjects learn to relax by imagining that their limbs are growing warm and heavy. Here are some of the benefits of the relaxation technique:

- ❖ Help the body to relax when under stress. This minimizes the physical wear and tear from stress.
- ❖ Help the mind to relax. Where the mind goes, the body follows.
- ❖ Help workers learn to recognize body tension and work to reduce it. The more these techniques are practiced, the easier they become.
- ❖ Help workers to become stress resistant. The more practice, the more relaxed your natural state will become.

Meditation is a relaxed state that is usually brought on by tense concentration upon single word, idea or object. Supposedly, meditative states are “free of anxiety, tension, or distress”. Biofeedback involves the electronic measurement of physiological processes such as heart rate, blood pressure, and muscle tension. These measurements are converted into signals, such as flashing lights or beeps, which provide feedback on how a bodily process is operating. Using the feedback, people then learn to control their internal states. For example, suppose that a light is activated on a monitor whenever your heart is beating at a relaxed rate. With practice, you can learn to keep the light on by maintaining that relaxed heart rate. Biofeedback can be used to control muscle tension, blood pressure, body temperature, brain waves, and stomach acid. By reducing the

physiological changes that accompany stress, people can reduce the incidence of stress-related disorders (Schultz et al 2006).

While relaxation, meditation, and biofeedback are intended principally to manage the physiological arousal associated with stress, they may also induce positive psychological reactions to stress. Other individual strategies include a variety of techniques to try to fend off work stress through better, more efficient work methods. Courses in time management are often advertised as methods of managing stress caused by overwork and inefficiency. Workers may also try to manage stress by removing themselves, temporarily or permanently, from stressful work situations. It is not uncommon for workers to exchange a stressful job for one that is less stressful. Going on a vacation may eliminate work stress. However, research indicates that while vacations do indeed reduce work stress and feelings of burnout, the effects are temporary. In fact, levels of stress and burnout are reduced immediately before, during, and immediately after the vacation, but tend to go back to original levels a few weeks after the vacation (Westman & Eden, 1997). These are some of the strategies for managing employee stress:

- ❖ Get a job description. If your employer has not provided a specific, written description of your job, ask for one, or better ask to negotiate. According to the American Psychological Association, the act of negotiating a job description does more to dispel a sense of powerlessness than anything else we know. You can object to what and insist on what you want. If there is a compromise, it's because you agreed to it. With a clear job description, your expectations are spelled out, as are your boss's.
- ❖ Change your job. If you like where you are working but your job is too stressful, ask if the company can tailor the job to your skills or move you to a less pressured slot.

3.1.2 There are still many things that employees-individually or collectively can do to manage workplace stress; Goal planning as a way of reducing stress: The importance of goals.

According to Brandon (1988) life may be constructed as a series of ever growing accomplishments as we move towards a multitude of personal goals. Achieving these goals is a key to high self-esteem, happiness and peak performance. People who are unhappy are often people who do not have goals. Without goals to strive for our lives can become empty, meaningless and stressful. Some people are more aware of the goals they are working towards than others and subsequently have a greater sense of direction and purpose. In studies of survivors of the horrors of prison camps, those who had a purpose in living, with well defined goals, were able to withstand greater deprivation such as starvation and torture.

The purpose of living could have been revenge, to build a new homeland, or to see their family. Prisoners flexible enough to develop new goals also seem to cope better with stress, even if those goals were something along the lines of becoming the world record holder for the number of consecutive pushups. A more contemporary example is the man who finally retires after a lifetime of work, with no new goals or plans. The emptiness can be devastating and very stressful. Recent research provides further examples. In one study a random group of residents in a home for the elderly and infirm were given a house plant to own and look after. Results indicated that the 'house plant' lived significantly longer than a matched control group, perhaps simply because the plants gave them some extra purpose in life (Ellis, 1976).

Goal planning is the act of deciding what you really want to do and then how you will go about it. The goal is made concrete by writing it down and making a commitment to it. Obstacles on the way to that goal must be anticipated, identified and viewed as challenges. Sartorius et al (1988) argues that there are of course reasons why people do not set goals: they may not know how to set

them, or more importantly, they may have fear of failure. Thomas Edison, the man who eventually invented an electric bulb, said “failure is essential to success; you cannot succeed without failing. Double your failure rate if you want to succeed”. Planning our future gives us a greater sense of internal control and increases self-esteem. Being able to anticipate the demands of the future makes us less vulnerable to stress.

3.1.3 Time management

Once a person has established goals and activities, and has time-tabled these projects in terms of dates of achievement, the effective management of time becomes important. This does not mean that people need necessarily to go faster, but that they organize their time more effectively. Charlesworth & Nathan (1982) tell a very poignant story about a young man who always wanted to be a lumberjack. He wandered up to the logging camp on his eighteenth birthday and enthusiastically asked for a job. Seeing that the boy was large, strong and healthy, the boss quickly agreed.

The first day the lad chopped down ten large trees entirely by himself. This was quite an accomplishment and the boss was very pleased. The next day the boy seemed to work just as hard and just as long, but he only chopped down eight trees. This was still quite respectable. The rest of the week passed and each day the boy worked just as hard and as long, but each day he produced less. On Friday the boss called the boy into his office noticing that he had only felled one tree. He was ashamed because he had produced so little and tears began to roll down his face. ‘Sir’ he said, I’m working harder and harder, but I’m afraid I’m disappointing you’. Why do you do so little? The boss asked. ‘I’m really trying sir’, was the boy’s response.’ Have you taken time to sharpen your axe, boy?’ enquired the boss. The boy answered, no sir, I really haven’t had time because I have been so busy working.’ The moral, work sharper, not harder.

The lesson to be learned is that taking time out of a fixed routine to stand back, and reassess the situation, is time well spent, and can create greater efficiency and productivity. According to Powell (1987) productivity increases as we spend more time and energy, but only up to a critical point. Past that point the productivity curve decreases. For example, if studying for an exam, it is well established that studying for long periods without a break is literally a waste of time. The human brain, particularly memory, works best for concentrated periods of about forty to fifty minutes. After this time, a short ten to fifteen minutes break provides primary recovery effects and helps consolidate previously learned material.

The student or executive who sits down and works non stop for two to three hours is not using his time productively, as, after fifty minutes, memory, concentration and attention skills decline. A ten minutes tea break, a telephone call, a brief conversation, anything which breaks up large blocks of concentration, improves efficiency. Deliberately changing tasks from writing to talking re-channels our mental energies, providing a break from one particular mental style, which again increases productivity. Working through a lunch-break is usually not a very good idea. Even a twenty minute walk across the park, and a sandwich in the fresh air, is an effective way of using time productively.

Similarly, after a week of hard stressful work, it is important to schedule relaxing and distracting activities for the weekend. Having a relaxing hobby or interest, which takes us physically and mentally away from work can be an invaluable insulator against a build-up of stress. It seems to help if the leisure activity is different in as many ways as possible from the work situation. For example, if you work indoors, at a desk, doing clerical work, a suitable hobby might involve being outside, doing some physical activity. Holidays can also be a valuable source of relaxation and distraction (Charlesworth & Nathan, 1982).

Taking five minutes in the morning, at the beginning of the day, to draw up a 'things to do' list is a useful way of planning time. If large goals are broken into small specified short-term tasks, a sense of purpose is created. Meeting these attainable short-term goals and progressively crossing them off the list can provide important sense of achievement and reinforcement. Making a list also offers the opportunity to set priorities, to assess which tasks have to be achieved, which tasks can wait, and which tasks can be delegated. A helpful strategy is to rate tasks into A, B, or C priorities. Where A is 'at once', B is 'best done today' and C is 'can wait'. Spending large amounts of time on 'C' items at the expense of 'A' items is unproductive and stressful. Lazarus (1976) argues that the perfectionist is a person who has problems setting priorities, and often ends up spending equal amounts of time and effort on tasks irrespective of their importance. Perfectionists end up working slowly, doing everything very well, and putting themselves under pressure. It is useful for such people to learn to vary the quality of their effort. This might involve deliberately doing something quickly and poorly. Attempting to do everything perfectly can lead to doing everything adequately, but nothing exceptionally well.

3.1.4 Managing Type-A Behavior

High scores in Type-A behavior inventories indicate that people with 'hurry sicknesses' are more susceptible to symptoms of anxiety, and stress induced illnesses. However, research suggests that most successful and satisfied executives show classic type-A behaviors. Friedman & Rosenman (1974) suggest that it is not a question of getting rid of Type-A behavior, rather that we should learn to manage it. They make a number of suggestions, or 'drills against hurry sicknesses'. After a client has completed the Type-A inventory, and identified areas for possible change, the following drills may be useful. The therapist will be deliberately encouraging the client to 'go against the grain', by negotiating specific behavioral homework tasks.

Try to restrain from being the centre of attention by constantly talking. Force yourself to listen to other people. Stop finishing sentences for other people. Ask yourself the question 'Do I really have anything important to say?' and 'Does anyone want to hear it?' Search out somebody that talks slowly, and deliberately have a slow conversation. Try to control your obsessional, time directed life by making yourself more aware of it, and changing the established pattern of behavior. Whenever you catch yourself speeding up in a car to get through a red light, deliberately penalize yourself by turning right at the next corner. Circle the road and approach the same signal again. Similarly, deliberately walk slowly and set yourself a specific time period for a relaxing lunchbreak. See how long you can take to eat a meal or a sandwich, chewing every mouthful as slow as possible (Parker, 1998).

Take as many stressfree 'breathing spaces' during the course of an intensive work day as possible. Make sure you do something that relaxes you; it can mean reading the newspaper, taking a walk, talking to people you like, including five minutes intense relaxation spots during both morning and afternoon, where you concentrate on relaxing muscles, slowing your breathing down and calming your mind. Take time out to assess the cause of your 'hurry sicknesses' and 'hostility'. Is it due to a need to feel important? Is it designed to avoid some activity or person? Is this hostility the result of feeling threatened and insecure about the present situation? Make a deliberate effort to develop enjoyable leisure activities and hobbies. Look back on the activities you have enjoyed in the past and select one to develop. Commit yourself fully to participate in such activities. Don't allow your energy to be channeled into work.

3.2 Organizational strategies of managing work stress

Because work stress can come from a variety of organizational sources, there are many things that organizations can do to manage situational stressors in the workplace. Organizational stress-management interventions include altering the

organizational climate and providing treatment under employee assistance programs (Brown & Barbara, 1977).

3.2.1 Controlling organizational climate

Because one of the stressors of modern life is planned change, the organization should provide sufficient support to enable employees to adapt to change. Informing the employees about any change that is going to take place within the organization reduces the levels of stress among the workers. Stress can be prevented or managed by allowing employees to participate in decisions about change in work practices and in the organizational structure. Participation helps employees accept change and allows them to express their opinions and air their complaints.

While EAPs can be very beneficial to workers, the relief they bring may be superficial and short-lived if important root causes of stress in the work environment are not addressed. According to Peterson et al, (2001) no meaningful job or workplace is, or should be expected to be, stress-free. However, less stress occurs when a business or institution encourages employee participation from the bottom up, implements policies that take employees needs into account, and empowers employees to do their best.

Changing the organization to reduce job stress, improves communication, share information with employees to reduce uncertainty about their jobs and futures, clearly define employees roles and responsibilities and make communication friendly and efficient, not mean-spirited or petty. Consulting your employees gives workers opportunity to participate in decisions that affect their jobs. Be sure the work load is suitable to employees' abilities and resources and avoid unrealistic deadlines and show that individual workers are valued.

As indicated in the previous chapter low pay or remuneration is one of the factors that causes employee stress, so offering rewards and incentives, praising good work performance verbally and institutionally, providing opportunities for career development and promoting an entrepreneurial work climate that gives employees more control over their work can help in managing work stress within the working environment (Westman & Eden, 1997).

3.2.2 Provision of stress-management programs (EAPs)

According to Powell & Enright (1990) Employee Assistance Programs (EAPs) can include in-house counseling programs on managing stress. Evaluative research has been conducted on Employee Assistance Programs that teach individuals stress control inoculation techniques such as relaxation, biofeedback and cognitive restructuring. Studies show that these programs can reduce the level of physiological arousal associated with high stress. Participants who master behavioral and cognitive stress-relief techniques report less tension, fewer sleep disturbances, and an improved ability to manage stress. Some corporate stress-management programs are directed toward Type A executives in the hope of reducing the incidence of coronary heart disease.

Exercises to alter Type A behavior include speaking more slowly and learning not to interrupt others when they are talking. Executives are trained in such management practices as delegating responsibility, establishing daily goals, setting priorities, and avoiding stress-producing situations. A study of 130 employees in the Netherlands who participated in a corporate stress-management training program found significant reductions in anxiety and psychological distress, and improvements in assertiveness.

An Employee Assistance Program is an intervention based in the workplace. It recognizes that issues and events in the employees' personal lives have a negative effect on their performance at work. The reasoning behind an EAP is

that by helping employees to face and deal with problems that are affecting their work, an organization saves money and creates the sort of environment that attracts and retains loyal and productive people. An EAP is not a short-term, quick-fix initiative. Nor can the results be measured overnight. However, research has shown that an organization that offers these services to its employees' receives benefits often beyond expectations.

Two key tenets of a successful EAP are that the employer or EAP manager acts as a facilitator and that help and advice are outsourced, thus ensuring employee confidentiality. This confidentiality is essential to the success of any EAP, since by their nature, the sort of personal issues that affect an employee's work performance often attract stigma, fear and insecurity. These are some of the potential benefits of the EAP to the employee:

- ❖ Confidential advice and assistance, at no cost to themselves, with issues that are affecting their performance at work
- ❖ Less anxiety and stress at work
- ❖ An understanding of their problems
- ❖ Possible solutions to problems
- ❖ Personal growth and learning opportunities
- ❖ Improved health and lifestyle
- ❖ Increase in trust of management

Some of the potential benefits to the employers:

- ❖ EAP offers practical solutions to several HR problems
- ❖ Less absenteeism
- ❖ Higher productivity. Better work performance

- ❖ Improved employer/employee relationship
- ❖ Employees feel more positive about the work environment

3.2.3 Improving employee training and orientation programs

Perhaps the most stressed group of workers in any organization is new employees. Although they are usually highly motivated and want to make a good impression on their new bosses by showing that they are hard working and competent, their lack of certain job-related skills and knowledge means that new employees are often unable to perform their jobs as well as they would like. This mismatch between expectations and outcomes can be very stressful for new workers. Moreover, they feel a great deal of stress simply because they are in a new and unfamiliar environment in which there is much important information to be learned. Companies can help eliminate some of this stress by ensuring that new workers receive proper job training and orientation to the organization. Not only does this lead to a more capable and productive new workforce, but also helps to reduce the stress-induced turnover of new employees (Schultz et al, 2006).

3.2.4 Providing fitness programs

The number of organizations offering wellness or physical fitness programs to promote occupational health is now well over 80 percent. By enhancing physical and emotional well-being, employees may become less vulnerable to the effects of stress. The focus is on counseling employees to change or modify unhealthy behaviors and to maintain a healthy lifestyle (Cox, 1986). Although such programs are sponsored by the organization, the responsibility for healthy behaviors such as exercise, proper diet, and stopping smoking rests with the employees.

3.2.5 Giving support and freedom to employees

It is important to provide workers with freedom to work at a pace that they find natural and to choose the method they prefer for performing the work. Of course, some limits have to be given and some boundaries have to be set, but the fear sometimes expressed by management of low productivity when goals are set, appears unjustified. Giving workers a great deal of freedom to choose their own methods will also mean a new role for supervisors. The function of a supervisor has traditionally been that of the cleverest worker who knew how to handle things. The supervisor intervened as soon as it was observed that the work was not being carried out exactly according to his or her own experience, with supervisors ready to correct the slightest deviation from what was thought to be the best way (Globerson, 1985).

Giving workers some freedom to choose their own way to reach their production goal means that the supervisor often has to put personal smart ideas hold. He or she must wait and observe the result before commenting. The role will change from that of a sergeant to that of a consultant or even a gardener: taking care of the workforce, pruning and weeding. Support is something that is not only provided by managers. Support from fellow workers can also be very valuable. Organizational support can prove extremely useful. Giving clear rules on how work is to be arranged at the workplace can be seen as support and can be very important. Especially in respect of insecure and newly employed workers. Regular meetings where information can be given and work discussed openly can also be a means of support.

Using the local, state, and federal agencies created to support workers' interests and your union, if you belong to one to back you up in situations that expose you to unnecessary danger, unsafe or unhealthy conditions, or undue harassment. While some locations and agencies are more sympathetic than others,

sometimes simply knowing where to turn for help is enough to start an employer thinking about improvement.

There is substantial evidence that social support, at work or at home, may provide an effective insulator or buffer against the effects of stress. A number of studies by Marmot et al (1975) have noted markedly reduced rates of coronary heart disease in Japan as compared to the United States. This seems to be related to certain features of Japanese lifestyle and working practices, such as shared decision-making, group affiliation, corporate identity, and group counseling. Other research has shown that women with a confiding relationship are much less likely to become stressed.

Many clients falsely assume that an extensive social network, involving family, friends, and colleagues, just happens. This is blatantly untrue. The maintenance of friendships and relationships requires a certain amount of deliberate effort and hard work, they have to be developed and cultivated. According to Bennett et al (2001) the overall goal of 'increasing social contacts' just like 'having more money' can be broken down into specific objectives and activities. Home-work tasks may centre on the client achieving specific behavioral tasks. Examples of these tasks include, chatting for two minutes to the man in the corner shop, inviting the neighbor around for a drink and telephoning an old friend. It is important not to take on over-ambitious tasks or the client will feel demoralized. Small achievable tasks increase confidence, and prepare for more difficult tasks. The underlying principle of such homework tasks, in the form of self-help therapy, is that everybody can set themselves a task, however small, and achieve it.

3.3 Strengthening the individual's response to stress

Managing the effects of stress by improving workers resistance is a controversial issue. It is often highlighted how blame for problems of stress at work has to be placed on the workplace and that it is this that has to be changed, rather than the

worker concerned. However, the workers' physical fitness can help protect against stress and employers can find it worthwhile, in terms of costs and benefits, to promote good health in the workforce by supporting the costs of gym fees, and sending workers courses designed for healthy ways of living (Cox, 1985).

According to Darlington (1990) certain methods of selection of workers are also criticized. It is argued that the job should be adjusted to workers rather than the other way around. It seems obvious, however, that a high degree of stress tolerance has to be a natural base for hiring policemen or members of a fire brigade. It is difficult to give rules for selecting assembly-line workers, but many experienced supervisors claim that the level of formal education of such workers should play a limited role in their selection. Unquestionably the most important factor is competence at work.

Competence at work will give the worker confidence in the task to be performed and this, in turn, creates a feeling of security which will also protect against stress. This is one of the most important factors, as it will also provide a base for variation at work, work enlargement and work enrichment.

3.4 Improving the physical work environment

Many factors can make an assembly workshop uncomfortable and be a cause of stress. However, to create an absolutely perfect work environment can be unreasonably expensive. The problem here is to find out what can be looked upon as fair and reasonable, taking into account the specific circumstances in which work is performed. For instance, different criteria have to be used in a foundry as compared to a workshop for electronics.

It is a good rule always to have a workers' representative involved in all studies and decisions made concerning the work environment. The workers

representative should be open-minded, able to communicate and have the full confidence of the workforce. If the workers are not involved in the process of changing the work environment, it is unreasonable to expect full and wholehearted support when changes are introduced. It is wise to remember the formula $E=Q \times A$, which means that the effectiveness of a change is a function of the quality of the decision and the acceptance from the workers who are influenced by it. If a decision is made over the heads of the workforce, the acceptance (A) in the formula will be low and so will be the effectiveness of the change (E)

Whatever decisions are taken or changes made concerning the workplace, the most valuable information can be gleaned from the workers themselves. They cannot take the place of the production technicians or designers, but these specialists can seldom produce a good end result without support from the worker. Hiding facts from the workforce can lead to very serious consequences. Building up confidence is a very difficult, long-term process which can so easily be destroyed (Schultz et al 2006).

Investigations about possible risks in the workplace are not always reported to the workforce. Management often underestimates the value that information given concerning suspected risks. Even if the information states that no risk exists, it helps in building confidence between management and the workforce. Failing to report can lead to unmotivated fear, rumors and stress in the workforce.

3.5 Changing the work organization

As already mentioned, important stress factors in assembly work are anxiety, low level of control over work methods and few possibilities for self-fulfillment. Methods such as work rotation, work enlargement and work enrichment can help in managing work stress while improving performance. Working in

empowered working teams can also add to work quality and be a valuable social factor, which is also effective in protecting against stress.

Work rotation. Work rotation was first introduced into short-cycle, repetitive, monotonous work to add variation to the muscle load. In work rotation, workers move from one task to another according to an established scheme which reduces strain on the musculo-skeletal system. In old-fashioned assembly-line work, where there is not a great deal of difference in the muscle load between adjacent jobs in the production chain, the effect of introducing work rotation is often not very remarkable. Furthermore, job rotation seldom means more freedom at work or more meaningful work, as workers are still paced by the production system. However, work rotation has its positive sides. Sharing work tasks enables the workers to get to know one another as well as the work undertaken by their colleagues; they feel part of a whole, and realize it is important to carry out their responsibly as it affects the entire production.

Work enlargement. Work enlargement involves workers learning each other's task in production. Each worker can learn to take full responsibility for the production of a given part of a certain product and, if the product is not too complicated, for all the different tasks that are needed to complete it. A worker with a broader competence, and thus higher flexibility, can more easily create a better flow of products through the workshop, avoiding bottlenecks. This, of course, is important to the company and the customers as well as to the workforce. Workers will be aware of having done a good job, which will improve their self-esteem, which in turn, will protect them against stress.

Work enrichment. Work enrichment involves workers taking up more complex and varied tasks than in work enlargement. Assembly-line workers can, take over responsibility for storekeeping and packing. They can take part in production planning, production technology, production development and even planning of investments, decisions concerning new equipment and product design. At Absa

Brown Boveri in Sweden, it is an unwritten, but absolute, law that, when buying equipment for manual work, the operator's opinion has to be taken into account. Workers representatives also accompany the technical experts when visiting the contractor.

Work enrichment in the engineering industry almost invariably means integrating some tasks normally preformed by technicians into the work normally undertaken by assemblers or the like. To train an assembler to perform all tasks of a technician is unrealistic. However, the assembler can learn vital parts of the technician's work. An assembler and technician working together closely can form an formidable team.

According to Bond and Bunce, (2001) the difficulty is to choose the parts of the technician's work which are well-defined and which can be simplified so that the assembler can undertake the work without an enormous amount of training. One problem which may arise is that the technician may feel that their job prerogatives are threatened by the assemblers doing their work. It is very important to make technicians aware that they will not be replaced and that, on the contrary, by training the assemblers in the technicians' work, they will bring even more effectiveness to the organization as a whole.

Work enrichment really means giving manual work more meaning and, for many workers, it is a welcome challenge. The more tasks that are integrated into production work, the higher the qualification of the workforce and the more effective their input to productivity.

The Herzberg model (1969) suggests that jobs in industry need to be more enriched. Herzberg argues that instead of giving a man fewer and fewer tasks to do, a man should do as many tasks related to his job as he can. A person's job should allow opportunities for achievement. It should be complex enough so that he can demonstrate that he can accept responsibility. The job should not be

completely defined but should have an open end to its description so that the person doing it has an opportunity to show his creativity. It should be of direct interest to the person. These are difficult criteria to meet.

Enriching a job is more than just enlarging it. Enlarging may just mean “more of the same old thing”, tripping three foot pedals instead of one. Enriching involves more tasks to perform and more of the total person involved in doing them. For example, enriching a machine job would mean that the person not only trips foot pedal on his machine. He would also set it up for operation, take responsibility for short-term and long-term maintenance, make sure that he has the proper material to machine, and inspect and take responsibility for the material as it leaves his work station.

Some people believe that while enriching jobs might make workers feel better, it will make production less efficient. There is very little research to confirm or refute this belief. However, there are cases where job enrichment has been accompanied by an increase in productivity. In a study reported by Biggane and Sternberg (2003), the job of assembling a waterpump was redesigned. Originally a 26-part washing machine waterpump was assembled by five men working on an assembly-line. In the redesigned job each worker assembled the entire pump by himself. Quality improved with rejects going down from five percent before the redesign to five tenths of one percent after the job enrichment program was completed. The average cost of producing a waterpump was lower, and the rate or turnover was lower.

Another way to make work more interesting is to encourage members of the organization to participate more in job planning and operation. When all employees in an organization participated in bringing about change on their jobs, morale improved and production goals were met (Sternberg 2003). In this study the management of men's clothing company wished to make major changes in production methods. The objective was to shorten the time necessary to produce

a garment and thus reduce the in-process inventory, to provide more flexible control of the production process, to reduce costs, and to improve the quality of the product.

The company had a general plan for re-engineering the production lines but the specific details of the changes had not been worked out. Since the company had two small plants and one large plant, they planned to introduce the changes at the small plants. At each of the small plants the management conducted a series of meetings with workers to introduce the plans and explain them. During these meetings workers asked questions and offered suggestions, and afterwards the changes were introduced gradually.

The new system was eventually completed. After it had operated for some time to become stable, management initiated another series of meetings. In these, management and workers discussed revisions in the wage rates and tried to insure that the earning opportunities of all workers were protected and no one suffered any economic loss as a result of the new methods. Workers also had a chance to make known any complaints or suggestions about their equipment and other features of the changes. All complaints were investigated and corrected. As a result of this careful planning and participation the new system was fully developed and refined in the small plants and later successfully introduced into the large plant. The outcomes desired by the management when they introduced the change were achieved with little employee dissatisfaction (Lesieur & Puckett, 1969).

Work teams. A reorganization of assembly work by work enrichment is most often carried out with the creation of working teams. It is important to remember that assembly work is much more complicated now than in the past. In workshops where thousands of identical products are made, it makes economic sense to automate, which means that assemblers have been, or are going to be, replaced by mechanics. Workers are now only involved in the assembly work

when customers make special requests and, the more complicated the product, the more competence is needed.

By using work enrichment techniques one worker can, for example build an entire motor by himself. However, if the product is more complicated, it is not possible to train a worker to manage all the different tasks involved in the production. In that case, a team with different competencies will have to be formed. Only by delegating to a team of workers a broad set of competencies is it possible to obtain a flexible flow of production in manufacturing. This, in turn, can increase motivation and enhance solidarity at the workplace (Darlington, 1990).

3.6 Conclusion

Managing and minimizing of stressful working situations are very important for organizations. Most tasks that are performed by blue collar workers are stressful themselves. Managing of stress improves productivity, increases work motivation and reduces the expenses caused by labour turnover. Both the employees have a role to play in minimizing stress levels in organization. Implementation of Employee Assistance Programmes and provision of social support by the management and the co-workers are some of the strategies that can help in managing stress

CHAPTER FOUR

Effects of stress on the employees and the organization

4.1 Introduction

Stress is a very complex phenomenon. It is very much a personal condition and individuals vary in their ability to cope with different forms and levels of stress. In fact we all need some level of stress, as stimulus, to get going and live (Green, 1993). However, higher levels of stress can greatly affect individuals and organizational performance. It is not a stress-free environment that organizations and individuals need to aim for at work but a stress-controlled one, which is beneficial for everybody. It is important for organizations to recognize this and apply appropriate methods and processes to reduce stress. Creation of an inclusive, participative, inspirational and respectful work environment would not only reduce stress at work but also improve individual and organizational performance.

We have noted some of the long-term consequences of stress, those psychosomatic disorders that arise from prolonged exposure to stressful conditions. In addition, there are long-term psychological consequences, such as tension, depression, irritability, anxiety, low self-esteem, psychological fatigue and neuroticism. Research has also linked high work-related stress to spouse abuse, child abuse and aggressive behavior on the job, such as overt hostility and sabotage. Other effects of work stress include mass psychogenic illness, burnout, and workaholism.

Continuing problems of workplace stress led to a field of study called **occupational health psychology**. This concern for occupational health and employee well-being can be traced to the early years of industrial psychology practice. This study deals with the health effects of job stress and other aspects

of employee well-being. The goal of occupational health psychology is to understand and combat the harmful effects of stress on employee health and safety.

4.2 Low job performance

There is a strong link between stress and job performance. A specific work related definition by the US National Occupational Safety and Health (NOISH, 1999) defines work stress as the harmful physical and emotional response that occurs when the requirements of the job do not match the capabilities, resources and the needs of the worker. Stress can lead to poor health and even injury. A certain degree of stress is necessary for good mental and physical health. This is termed 'eustress'. Too much stress can lead to 'distress'. Hawkins (1994) states that too much or too little stress can have effects on performance with resultant effects on the health of the individual and the organization.

Stress can arise in white as well as blue collar occupations. Surveys have found little difference between white and blue collar workers in terms of somatic complaints, health, life satisfaction, depression or other indicators of stress (Jones, 1999) However, sources of stress are thought to differ for white and blue collar workers. According to the Australian Chamber of Commerce and Industry (ACCI, 1990) sources of work related stress can be grouped into four general categories:

- ❖ Work load- too much; too little; too difficult; too easy.
- ❖ Work conditions- organizational structure; office politics; poor job design; organizational culture; low work control and autonomy.
- ❖ Work patterns- shift work; repetitive work; machine-paced work.
- ❖ Work roles- role ambiguity; conflicting job demands; conflict between personal interests and commitment.

The American Psychological Association (APA, 1996) reported that in recent insurance industry studies, nearly half of American workers say their job is “very or extremely stressful” and 27 per cent said their job was the greatest source of stress in their life. The level of stress amongst employees are purported to manifest themselves in higher absenteeism, higher labour turnover, higher workers compensation claims, lower productivity and /or efficiency, and poor safety records. Miller (1997) reported that in terms of lost hours due to absenteeism, reduced productivity and workers compensation benefits, stress costs the American Industry more than \$ 300 billion annually, or \$7,500 per worker annually.

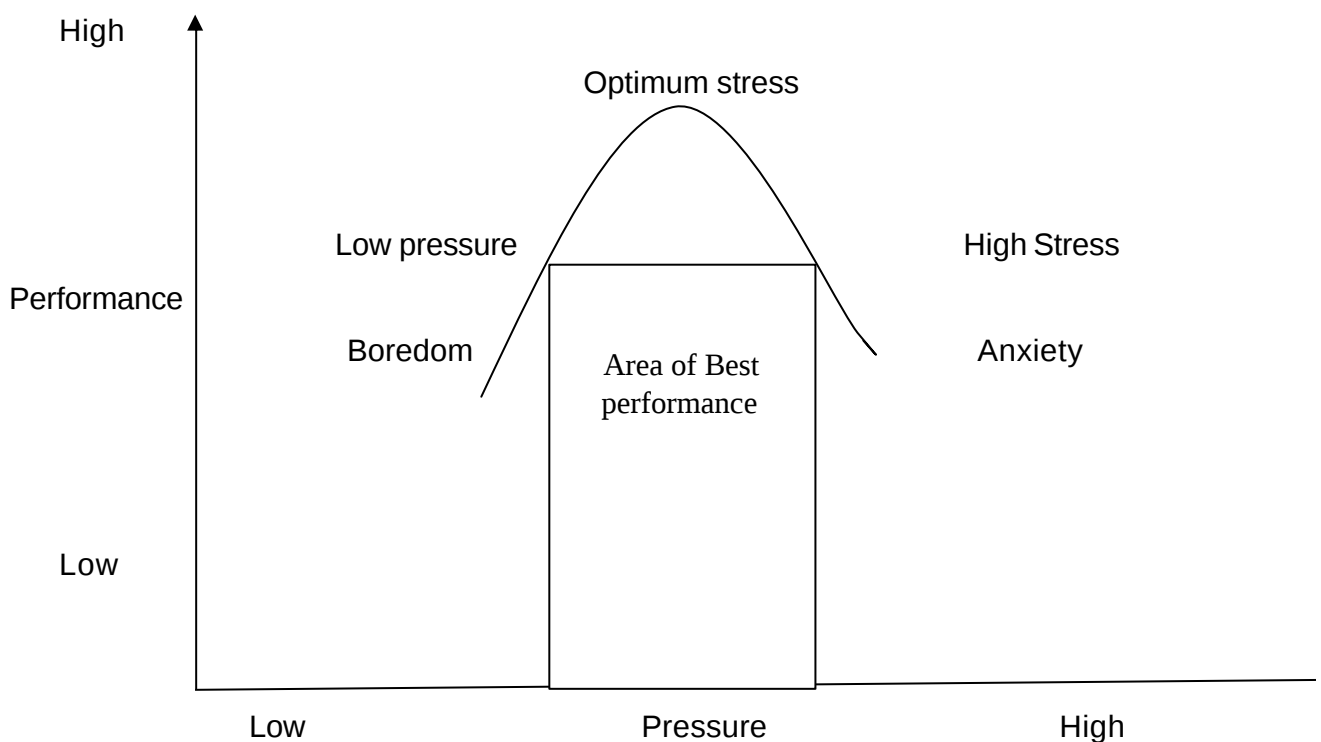
Jones (1999) reported that the National Rail Corporation, formed in 1995, had been operating at an annual loss of about \$350 million. This was related to stress because tired drivers (too much work and shift work) would press brakes more often than necessary. Drivers could not judge whether danger was real or imagined, so they put on the brakes, costing \$400 each time. This clearly indicates just how serious a problem stress can be.

According to Miller (1997) stress can have an effect on important work outcomes. Stress is believed to cause decreased work performance and increased absenteeism and turnover. However, the relationship between work stress and work performance are quite complex. It has been suggested that the relationship between stress and performance may often take the form of an inverted U, rather than being direct and linear, with greater stress leading to poorer performance. In other words, very low levels of stress (or no stress) and very high levels of stress are associated with poor work performance, while low to moderate levels of stress seem to be related to better performance. This makes sense, because very high levels of stress will interfere with job performance. On the other hand, having little or no stress may well mean that workers are not being challenged or motivated. In short, a little bit of stress might not be a bad thing. Of course, both

stress and job performance are extremely complex variables, and this inverted U relationship may not hold for all types of stressors or for all aspects of job performance.

The left hand side of the table is easy to explain for pragmatic reasons. When there is very little pressure on us to carry out an important task, there is little incentive for us to focus energy and attention on it. This is particularly the case when there may be other, more urgent, or more interesting, tasks competing for attention.

Table 4.1 The inverted U relationship between pressure and performance



4.3 Physiological effects of stress

Some of us feel stress every time we take an exam. People undergo stress when a car runs a stop sign and almost hits them or when a shadowy figure chases them down a dark street. When something like that happens, we become anxious, tense and fearful. Stress involves physiological and psychological responses to excessive and usually unpleasant stimulation and to threatening events in the environment. Dramatic physiological changes occur during stress. Adrenalin, released from the adrenal glands, speeds up all bodily functions. Blood pressure rises, heart rate increases and extra sugar is released into the bloodstream. The increased blood circulation brings additional energy to the brain and muscles, making the person stronger and more alert to cope with the threat.

A stressful situation mobilizes and directs one's energy, boosting it beyond its normal level. With the excess energy of this so-called fight-to-flight response, an organism (human or other animals) will either fight the source of the stress (perhaps an attacker or a predator) or flee from it. Most of the research conducted on the fight-to-flight phenomenon has been conducted on male subjects to note that they respond differently to stresses. Researchers characterize women's response to stresses "tending-and –befriending." Tending involves nurturing activities designed to protect themselves and their offspring from the stress; befriending refers to the development of social groups or networks that also help defend against stress (Taylor et al, 2000).

Although behavioral responses to stress vary by gender, the physiological changes induced by stress are experienced by both men and women. Most of us will not encounter extreme emergency situations, and few jobs expose people to threatening events such as those faced by police, firefighters, or soldiers in combat. For the majority of us, the stresses we face on the job are psychological

or emotional in nature, such as an argument with the boss, the belief that we have been treated unfairly, or concern about a promotion.

This constitutes what we commonly refer to as hassles or insults in everyday life. Individually, they are low-level sources of stress, but they are hard on the body when they accumulate. Each stress adds to the previous one and can tax the body's energy reserves because of the physiological changes it produces. If stressors are frequently found in the workplace, the body remains in a state of high physiological arousal and alertness for long periods, a condition that can lead to physiological damage as well as psychosomatic illnesses.

Psychosomatic disorders are not imaginary; they involve specific tissue and organ damage. Although their origin lies in psychological and emotional factors, they have a definite physical impact on the body. Further, the illnesses brought about by stress can serve as a new source of stress. When physical health has declined, resistance has been lowered, and bodily energy has been reduced. As a result, motivation and job performance are bound to suffer. A large-scale meta-analysis of more than 300 research articles dealing with stress found that chronic stressors such as worry over losing one's job, or the fear of unemployment, can suppress the bodily immune system. This leaves the individual more vulnerable to disease with fewer physiological resources with which to combat it (Segerstrom & Miller, 2004).

According to Zellars and Perrewe (1998) it is important to note that not all employees are affected by stress in the same way. Consider air traffic controllers, who have one of the industry's most stressful jobs. Hour after hour they must exercise constant vigilance, tracking aircraft at various speeds and altitudes converging on or departing from the same point. Their work is hectic, difficult, and demanding, with the additional burden of being responsible for thousands of lives throughout each work day. Research on the physiological functioning of air traffic controllers shows that their bodies reflect the pressure of

the job. As the number of aircraft in their sector increases, coronary arteries become more constricted and blood pressure rises. The incidence of hypertension among aircraft controllers is three times higher than normal for their age group. This would appear to be a classic example of the deadly effects of stress. We would guess that the rate of heart attacks, strokes, and other stress-related disabilities is many times higher among aircraft controllers than among the rest of the population. But research indicates that this is not so. On some measures, air traffic controllers show a pattern of disease and early death, on others they are apparently unaffected.

4.4 Job satisfaction and feeling of control

What makes the difference? Why doesn't the job pressure affect them all in the same way? The difference seems to lie in the level of job satisfaction controllers get from their work. Those who report being very satisfied with their jobs suffer fewer harmful effects of stress. Those who are very dissatisfied with their jobs show many more stress-related effects. A study of 1,886 business managers in the United States identified two kinds of daily work stress (Cavanaugh et al, 2000).

- ❖ Challenge-related stress, which includes time pressure and a high level of responsibility that lead to feelings of fulfillment and achievement.
- ❖ Hindrance-related stress, which includes excessive job demands and strains (such as red tape, poor support from higher management, and job insecurity) that interfere with achieving goals.

Thus, not all stress is considered harmful. Challenge-related stress is motivating and positively related to job satisfaction. Hindrance-related stress is associated with frustration and low job satisfaction. High job satisfaction contributes to health and longevity, although both types of stress were shown to lead to detrimental

health effects. This accounts for the fact that some people in high-stress jobs, such as air traffic controllers, maintain general good health. Consider another high-stress occupation, that of corporate executives. It is widely assumed that executives experience enormous job stress and consequently have a higher rate of heart attacks than does the general population. Research does not support this position. High-level executives have 40 per cent fewer heart attacks than do middle-level managers, who are popularly assumed to work under less stressful conditions.

The primary reason why top executives are relatively less affected by job stress is that they have more autonomy and control over their work than do middle-level managers. Research has shown that being able to control workplace events can significantly reduce perceived job stress. People with low levels of job control are far more likely to develop heart disease than are those with greater control over the demands and responsibility of their job. Research on 97 government employees in Britain found that reorganizing their jobs to give them more choice and control over their work tasks resulted in significant improvements in their self-reported mental health, job performance, and absence rates for illness over a one year period (Bond & Bunce, 2001).

4.5 Individual differences in stress responses

If we are to examine thoroughly the causes of stress on the job, then we must take account of personal factors that can render employees vulnerable to stress. Not all stressors at work affect people the same way. A source of stress that can ruin the health of one worker may have no noticeable effect on that of a colleague. We have mentioned two factors that may reduce a person's susceptibility to stress; high job satisfaction and control over the conditions at one's work. Several other variables have been related to our vulnerability to the effects of stress. One factor involved in coping with stress is social support, our network of family and social ties.

The person who lives alone or is emotionally alienated from others is more likely to be sensitive to stress than is someone who has strong ties to family, friends and colleagues. Family support can help compensate for negative feelings about one's job and can enhance self-esteem, acceptance, and worth. Social support on the job, such as a cohesive work group or a good relationship with one's boss, can also reduce the effects of stress (Evans & Steptoe, 2001). The lack of social support can increase the risk of heart disease. In general the lower the level of available social support, the greater the health risks. Variations in social support over the course of the work day have been found to affect blood pressure. Studies of men and women in various occupations showed that blood pressure rose when social support was low and dropped when social support was high.

General physical health is related to susceptibility to stress. People in better physical condition suffer fewer harmful effects from a stressful work environment than do people in poorer physical condition. Physical exercise is a good way to improve general well-being. Many companies provide exercise facilities to help employees alleviate stress. Our level of ability to perform our jobs can make us more or less resistant to stress. Employees with high levels usually find their work less stressful than do employees with a lower skills level. You may have noticed this effect in your college classmates. Students who are barely able to keep up with the course work are usually more anxious about exams than students who have less difficulty mastering the required material.

4.6 Burnout

The effects of job stress that result from overwork can be seen in the condition called burnout. Employees suffering from burnout become less energetic and less interested in their jobs. They are emotionally exhausted, apathetic and depressed, irritable and bored. They tend to find fault with all aspects of their

work environment, including co-workers, and react negatively to the suggestions of others. The quality of their work deteriorates but not necessarily the quantity.

Employees suffering from burnout tend to become rigid about their work, following rules and procedures comprehensively because they are too exhausted to be flexible or to consider alternative approaches. In time, the burned-out employee will have an impact on the emotional health and efficiency of co-workers and subordinates. Advanced burnout is characterized by even lower energy, self-esteem, self-efficacy and job involvement, as well as an increase in physical stress symptoms, turnover, and social withdrawal at the very time social support is most needed. Deterioration in job performance becomes noticeable, and poor performance appraisals are usually the result (Cropanzano et al, 2003).

Three components of the burnout syndrome have been proposed (Maslach et al, 2001):

- ❖ Emotional exhaustion- the feeling of being drained and empty that is caused by excessive psychological and emotional demands, often brought about by work overload or unrealistically high expectations.
- ❖ Depersonalization- a feeling of callousness and cynicism and reduced sensitivity toward others.
- ❖ Inefficacy-Reduced sense of personal accomplishment and the feeling that one's actions and efforts are wasted and worthless.

The Maslach burnout Inventory was developed to measure this condition (Maslach & Jackson, 1986). It consists of three subscales to assess the components of emotional exhaustion, depersonalization, personal accomplishment, and a related factor called personal involvement. Studies show the test has high reliability and validity. High scores on the burnout scale have been related to exhaustion and to work overload in various occupations.

Age is a significant predictor of burnout. Thus, burnout is an early-career phenomenon, more likely to occur among younger workers than those over age 40. Women are no more likely than men to experience burnout, but marital status is related to the condition. Single and divorced persons have been found to be more likely than married persons to experience emotional exhaustion. Emotional exhaustion has also been related to lack of opportunity for promotion. Burnout typically strikes employees who are highly dedicated and committed to their work, those who put in overtime, take work home, or come to the office on weekends.

Other factors have been related to burnout; these include feelings of time pressure, high levels of role conflict and role ambiguity, and lack of social support from supervisors. A study of 374 workers in Germany, in industrial jobs, human service jobs (teachers and nurses) and transportation jobs (air traffic controllers), showed that excessive job demands and lack of job resources were significantly related to exhaustion and disengagement from work (Demerouti et al, 2001).

Another study conducted in Germany involved 591 flight attendants, travel agents, and shoe sales clerks. The results showed that dealing with customers contributed to job stress and burnout. Four customer-related social stressors were described: disproportionate customer expectations; verbally aggressive customers; hostile, humorless, or unpleasant customers, and unclear customer demands which lead to employee role ambiguity (Dormann & Zapf, 2004).

According to Posig & Kickul (2003) a study of 40 managers of large companies, and 125 other employees in a variety of clerical, managerial, and professional jobs, found that burnout was negatively associated with decision-making opportunities involving one's work. Burnout (particularly the depersonalization component) was more likely to occur if employees were given little choice about

participating in making decisions relating to their jobs. Thus, the less influence they believed they had over their jobs, the greater the effects of burnout.

Several personality characteristics have been related to burnout. A study of 296 nurses in acute care hospital wards demonstrated that those who scored high on the Big Five personality factor of neuroticism were far more likely to experience burnout than were those who scored low on this factor. Those high in extraversion and agreeableness were likely to develop burnout, primarily because these qualities allowed them to engage in more interpersonal and social activities, such as talking with co-workers about their job stresses. That type of interpersonal relationship provided social support, which was not experienced by those who scored low in extraversion and agreeableness (Zellars & Perrewe, 2001).

The likelihood of experiencing burnout on the job is also higher among Type A personalities and among people who score low in hardiness, high in external locus of control, or low in self-esteem. Burnout may also vary among cultures, although the evidence to date is not definite. Some studies suggest that average burnout levels are significantly lower in European countries than in the United States, and that employees in Japan and Taiwan may experience the highest levels of burnout. Other studies have shown that English-speaking nations have higher average burnout scores (Maslach et al, 2002).

Burnout affects people in different ways. Burnout victims may feel insecure and experience unfulfilling personal lives. Because they lack self-esteem and recognition off the job, they try to find it on the job. By working hard and making significant contributions to the company, they earn esteem and tangible rewards and also prove to themselves that they are worthwhile. The price for prolonged overwork is an accumulation of stress and the depletion of the body's energy. This condition, in turn, leads to physical and psychological problems.

4.7 Mass psychogenic illness

One stress-related disorder among assembly-line workers is mass psychogenic illness, popularly known as assembly-line hysteria. This stress-induced malady typically affects greater numbers of women than men. It strikes suddenly, spreading so quickly throughout a production facility that the line may have to be shut down. Consider the case of an electronic plant in Ohio. One morning, an assembly-line worker complained of dizziness, nausea, muscular weakness, and difficulty breathing. Within minutes, nearly 40 employees went to the company health clinic with the same symptoms. The illness spread, and the plant had to be closed. Managers speculated that something was wrong with the air, perhaps some chemicals, gas, virus or other infectious agent (Hausknecht et al, 2002).

Physicians, toxicologists, and industrial hygienists were called in to investigate. They found nothing in the factory to explain the problem. The cause was determined to be mass psychogenic illness, a stress-related disorder that has no physical origin and that spreads by contagion. On another assembly line, employees were packing frozen fish in boxes for shipping. One employee remarked about a strange odor. Suddenly, workers began to choke, experiencing dizziness, nausea, and trouble breathing. The plant was closed, and investigators were summoned to search the building.

They found nothing, no toxic agent in the air, in the drinking water, or in the fish that the workers were processing. There was no apparent physical cause for the illness, yet there was no denying that the workers were physically sick. Although there is no physical cause, such as a virus in the air-conditioning system or a contaminant in the drinking water, physical stressors in the workplace have been found to trigger the onset of mass psychogenic illness. For example, the noise, speed, poor lighting, variable temperatures, unpleasant odors, and work overload conditions common to assembly lines can lead to mass psychogenic illness. Often, pressure to increase production on the line may contribute to the

phenomenon. This situation may involve considerable overtime work, which most employees are not in a position to refuse. Poor relations with supervisors can also be a factor (Frone et. Al, 1996).

If management has not established formal grievance procedures or if communication and feedback between employees and management are poor, then the resulting friction will be a source of stress. Another stressor related to mass psychogenic illness is social isolation. Employees who are unable to communicate with one another because of the noise and the rapid work pace can experience feelings of isolation and lack of social support from co-workers. Work-family conflict, especially for women, can be a source of stress, which may help explain why more women than men fall victim to assembly-line hysteria.

4.8 Workaholism or job engagement

Employees experiencing burnout are sometimes described as workaholics, people who are addicted to their work. However, not all of those labeled as workaholics strive to perform well because they are driven by anxiety and insecurity. Some genuinely like their work and derive satisfaction from it. To them, work is not an unhealthy compulsion that gradually wears them down. Rather, work provides a healthy, enriching, and stimulating focus for their lives. These workaholics are happy, well-adjusted people who enjoy their jobs. They seldom take vacations because they feel no need to escape from their work. However, because of their intense sense of commitment, they can be a source of stress.

Psychologists estimate that 5 per cent of all employees are workaholics and the majority of these are content. These healthy workaholics are likely to have supportive families, autonomy, variety on the job and tasks that match their levels of knowledge, skills, and abilities. Workaholics who lack these qualities tend to be discontented and dissatisfied. They are more susceptible to burnout and to

negative effects of stress. We have a distinction, then, between healthy and unhealthy workaholics. Healthy workaholics, or work enthusiasts, are highly committed to and involved with their work and derive such intense enjoyment from it that it seems inappropriate to consider them as suffering from a type of addictive behavior. Industrial psychologists have proposed a new label for employees who truly love their work; they are described as being high in job engagement (Maslach et.al, 2001).

Job engagement is still defined in terms of the three components of burnout, emotional exhaustion, depersonalization, and inefficacy, but those who score high in job engagement are described as high in energy, involvement, and efficacy. In addition, they are vigorous, resilient, willing to commit fully to their work, seldom fatigued, and persistent in the face of difficulties. They are enthusiastic about their work and take pride in it. Work is the centre and focus of their lives, and they are both unwilling and unable to detach themselves from it. Work is the source of their satisfaction, challenge, and fulfillment.

4.9 Conclusion

Studies that are being developed for Type A behavior that capture the dynamic process of the relationship between various stress situations and individual response to such situation are much needed. Such studies would allow examination of such key issues that affects both the organization and the employees. The more accurate our understanding of stress and its effects, the more precisely we can target our treatment and prevention, and the more effective will we be in disarming this contemporary problem.

CHAPTER FIVE

Research methodology

5.1 Introduction

The aim of this chapter is to describe the research methodology that was used in this study. Aspects of the design of the study together with the underpinning methodology are discussed in order to justify the quality and significance of the procedures that were applied. This chapter describes the process of obtaining an answer to a problem. The chapter also presents a quantitative analysis of the biological data of the respondents in tabular form.

5.2 Research design

Prior to describing the detail of the research methodology that was used in this study, it is important to consider the following questions: What is research methodology? Punch (2005) broadly defines research as: the collection of data about the world, to build theories against further data". Bless & Higson-Smith (2004) define research as "a systematic investigation of a question, phenomenon, or problem using certain principles". They qualify their definition by describing the characteristics of research as follows:

- ❖ Research is empirical since the aim is to know reality. Each step is based on observation, whether it involves collecting the facts, explaining or assessing the prediction
- ❖ It is replicable and transmittable. This implies that given the same set of conditions the study (observation) can be repeated to yield the same explanations or conclusions. Furthermore, the steps followed in the study can be described and communicated to transmit the acquired knowledge.

- ❖ Research is reductive. In order to deal with the main focus of the study, the complexity of reality is reduced. Therefore, all details that have no or little influence on the study are omitted.

A further important distinction, in answering the question what is research, has to be between research design and research methodology. Bless & Higson-Smith (2004) asserts that there is a tendency to confuse research design with research methodology. Babbie et al (2007) outline the differences between research design and research methodology

Research design focuses on the end product and outlines the type of study and results that are sought. The research problem or question represents the point of departure. Research design therefore, focuses on the logic of the research and considers the evidence required to address the research question while research methodology on the other hand, focuses on the research process and the kind of tools and procedures to be used. Specific tasks such as data collection techniques and sampling (questionnaires) represents the point of departure. Research methodology according to Babbie et al (2001) focuses on the individual steps in the research process and the most objective procedures to be used.

Leedy (1997) outlines the process of research methodology as comprising of eight steps, as follows:

1. Research originates with a question or problem.
2. Research requires clear articulation of a goal.
3. Research follows a specific plan of procedure.
4. Research usually divides the principal problem into more manageable sub-problems.
5. Research is guided by a specific research problem, question or hypothesis

6. Research accepts certain critical assumptions.
7. Research requires the collection and interpretation of data in attempting to resolve the problem that initiated the research.
8. Research is cyclical, or more exactly, helical.

From the eight steps outlined above Leedy (1997) concludes that research methodology controls the study, dictates the acquisition of data, and arranges them in logical relationships. The raw data is then redefined via appropriate approaches that derive meaning from the expansion functions of research methodology as follows:

- ❖ It controls and indicates the acquisition of data; and
- ❖ It allows for the grouping of data after the acquisition thereof and allows for meaningful expectations.

Considering the explanation of what research is, the research design adopted in this study was categorized into one main problem and three sub-problems. The main problem was:

What are the causes of stress among blue collar workers in the working environment?

Three sub-problems were developed to assist in formulating a more manageable research strategy to deal with and solve the main problem. The following sub-problems were identified.

1. What issues, as revealed in the literature review, cause employee stress?

2. What alternative strategies or courses of action can be taken to manage this stress?
3. How can the results obtained from determining 1 and 2 are used to help in stress management?

The following procedures were adopted to solve the main and sub-problems of the study.

5.3 Conducting the empirical study

The empirical study was conducted via survey. A survey questionnaire, which served as the measuring instrument, was developed for this purpose. In terms of Salkind's (2000) classification of the different types of research, the survey questionnaire utilized in this study is categorized as nonexperimental or rather descriptive research. Leedy (1997) describes the purpose of descriptive research as comprising two major components. Firstly, the populations stipulated in the research parameters are closely observed and secondly, careful record is kept of the observation (data) so that inferences may be drawn. This section will discuss sampling procedures, the development of the questionnaire, the pretesting of the questionnaire and the research responses of the study.

5.3.1 Sample

Before the empirical study was commenced it was necessary for the researcher to consider whether the entire population of elements or only a sample of elements of the population should be researched. Punch (2005) argues that it is often not possible to survey the entire population due to costs, time, quality of information and difficult population groups. Douglas (1976) points out that care should be taken as generalizations can only be made to the frame. Leedy (1997) asserts that "the sample should be so carefully chosen that, through it, the researcher is able to see all the characteristics of the total population in the same

relationship that they would be seen were the researcher, in fact, to inspect the entire population". He points out that the type of data will determine whether sampling is appropriate. Sampling is more appropriate when a large population with an outward semblance of homogeneity is researched.

Babbie (2007) asserts that studies involving organizations are often the simplest from a sampling standpoint because organizations typically have membership lists. The membership list would therefore represent the sampling frame and data collected from that sample may be taken as representative of all members.

Considering the abovementioned facts the Lesotho region was approached for the lists of employers in the mining industry (representing the sample frame of this research study). Furthermore, the database was compared to other available databases for the mining industry to confirm that all organizations that met the criteria were included.

The target population (which is the blue collar workers from the two regions) of this study consisted of all organizations in the mining industry in Lesotho that employed more than fifty employees. After careful consideration, it was decided to include only those organizations that employed more than fifty employees, as they were more likely to have more blue collar workers who experience high levels of stress (which is the focus of this study) than smaller organizations. Two organizations from the two different regions that employed more than fifty employees were chosen from the database. The entire population was included in the empirical study.

5.3.2 Sampling methods

Various sampling methods can be distinguished. However, Punch (2005) recommends that the sampling method that will ensure the highest degree of representativeness of the sample should be selected. He emphasizes that although various strategies have been developed to ensure representativeness

none are as successful in ensuring representativeness, as in random sampling. Mouton (2001) concurs that random sampling (also referred to as probability sampling) is the preferred method to use in the case of survey questionnaires.

Before the researcher decided on a sampling method that was best suited to this research, various other methods were also considered. Bless (2004) distinguishes between two main types of sampling, namely probability/random and non-probability sampling. The first type namely probability sampling, represents approaches that randomly select elements from the population. The approaches are summarized as follows:

- ❖ **Simple random sampling.** With this method each member of the population has an equal and independent chance of being selected to be part of the sample. All elements in the target population are allocated a number and the numbers are randomly selected /drawn (lottery or random numbering sheets).
- ❖ **Interval or systematic sampling.** This method is closely related to the previously mentioned one. However, instead of relying on random numbers, it is based on the selection of elements at equal intervals, starting with a randomly selected element on the population list.
- ❖ **Stratified random sampling.** This method involves dividing the population into groups/strata so that each element of the population belongs to only one stratum. This method is particularly useful for ensuring representativeness when dealing with a heterogeneous population.
- ❖ **Cluster sampling or multi-stage sampling.** In order to deal with incomplete information/list of elements, this approach starts off by sampling a population that is more general than the final one. In the second stage, on the basis of the first sample, a new population is considered which is less general than the first. The procedure is repeated until the population to be investigated is reached and a final sample is drawn.

The second type of sampling identified by Bless and Higson-Smith (2004), namely non-probability sampling is where the probability of selecting a single element is not known. Approaches in this category include the following:

- ❖ **Accidental or availability sampling.** This involves sampling all elements that avail or present themselves until the sample is large enough. This method is cheap and easy to administer, but the representativeness of the sample is highly questionable.
- ❖ **Purposive or judgmental sampling.** This method relies on the judgment of the researcher regarding the characteristics of a representative sample. This method has most value when used by an expert who is familiar with the population.
- ❖ **Quota sampling.** This involves drawing a sample that has the same proportions of characteristics as the population. The sample procedure relies on accidental choice instead of random selection.

Bless and Higson-Smith (2004) also mention other sampling methods. These are summarized as follows:

- ❖ **Sampling with or without replacement.** This method refers to a random sampling technique where the selected elements can, or cannot, appear twice in a sample. Elements once selected are replaced amongst the population and therefore stand a chance of being selected again (sampling with replacement).
- ❖ **Independent versus related/dependent samples.** This method involves the selection of two or more groups or samples in such a way as to make them independent. Each unit is selected randomly from the population and it is also randomly assigned to one or the other group (independent sample). Where

groups or samples are related and their elements match on specific properties they are referred to as dependent samples.

It is concluded from the above discussion that the most appropriate sampling method for this research is random sampling, which is within the probability category sampling technique. A further consideration that underscores sampling technique is sample size.

5.3.3 Sample size

A general rule of thumb when it comes to sample size is that the bigger the sample, the more representative and more accurate generalizations will be. Salkind (2000) recommends that the sample size be increased when the variability within a group is greater and the difference between two groups gets smaller. He advises that when groups are formulated the ideal size of the group should be thirty, thus allowing for meaningful statistical analysis. A total of 300 questionnaires were distributed and the response rate was 153. A further suggestion pertaining to the use of surveys and questionnaires is to increase the sample size. The population frame for this study has been established between 300 elements. De Vos, Strydom, Fouche & Delport (2002), as quoted by Berry (2003), indicate that a study population of between 200 and 300 will require between 100 and 200 respondents.

According to Barbara, S & Robert, S (1991) the following factors should be considered in making a decision on sample size:

- ❖ Size of the population. For a survey of library readers, a sample of 100 individuals would probably be sufficient. For a survey of library employees, this would be far too many. There may not even be 100 employees. The researcher might eventually decide upon a 50 percent sample among library

desk clerks and an 80 percent sample of administrators in order to obtain enough individuals in each category.`

- ❖ Available resources and time constraints. Pilot testing will reveal the costs in terms of time and effort for each testing session. The maximum size of the sample can be determined from such constraints. The optimal size of the sample will depend on other factors.
- ❖ Strength of the effect. When the independent variable has strong and clear effect on the dependent variable, a smaller sample can be used. For example, only a few subjects would be needed to demonstrate the effect of five ounces of alcohol on reaction time. A much larger number of subjects would be necessary to determine the effect of one ounce of alcohol, since this produces inconsistent and often contradictory results.
- ❖ Number of subjects to be compared. If the researcher wishes to compare groups within the sample by dividing it according to social class, age, ethnicity, or gender, for example, the sample must be large enough to include a sufficient number of individuals in each of the subcategories.
- ❖ Refusal and spoilage rates. A sample must be increased to allow for unusual data. It may be possible to predict in advance the number of people who will be unable to follow the instructions, drop out of the experiment, or terminate prematurely. A questionnaire given to and collected from a group of clerical employees is likely to have a high return rate, perhaps in excess of 80 per cent. However, the same questionnaire mailed to an unselected group of individuals with a request to return by mail may have a return rate of 10-15 percent.

Sample size should be specified in advance. This precludes the accusation that data collection was halted as soon as the results supported the hypothesis. The completion of one study does not rule out the possibility of additional ones. It is useful to begin a study with a small sample. The investigator interested in sex differences in running speed might compare 20 girls in one class. If the trends

are very clear, the researcher could stop testing in that grade and look for trends in other grades. However, if the original results indicated a weak trend, the researcher could repeat the study with additional groups of boys and girls at the same grade level. Two independent studies represent a more powerful test of a hypothesis than a single study involving twice as many subjects. A description of the sampling procedure should always be included in the survey report (Barbara, S & Rorbert, S. 1991).

5.3.4 Sampling error

Sankind (2000) describes sampling error as the lack of fit or difference between the characteristics of the sample and the characteristics of the population from which the sample was drawn. Bless and Higson-Smith (2004) argues against this definition and distinguish between two types of sampling errors, namely those caused by chance factors and those caused by bias in selection. The errors associated with the two categories are summarized below as follows:

- ❖ Discrepancies may just exist between the actual population from which the sample was drawn and the target population. This could be caused by an inaccurate frame list or a high degree of non-response.
- ❖ The lack of an adequate operational definition could lead to an inaccurate description of the population, therefore resulting in the wrong type of information being collected.
- ❖ Failure to identify all possible variables or having too many sources of invalidity that have escaped detection.
- ❖ Random error, where one element and not the other has been selected in a particular sample. This error is inevitable and unless the entire population is surveyed it cannot be completely avoided.
- ❖ Incorrect sampling method or too small sample size.

- ❖ Respondents may provide incorrect information.
- ❖ Some strata of a population may be over or under represented in the sample.
- ❖ Researchers bias that includes the beliefs, political, religious, and racial attitudes and other convictions of the researcher, play underlying role.

The research considered all the above in decisions pertaining to the research sample used in this study.

5.4 Questionnaire

Punch (2005) asserts that survey questionnaires seek a wide range of information and therefore they are more effectively formulated when a conceptual map (in diagram format) has been developed. The theoretical stress model for the development of the questionnaire. The development of the questionnaire used in this study is discussed below.

5.4.1 Development of the questionnaire

Bless and Higson-Smith (2004) asserts that questionnaires are the most widely used means of data collection and depending on their design can vary vastly according to their structure, purpose, how they are administered and method of analyzing and interpretation. He summarizes the key aspects, pertaining to questionnaire design as follows:

- ❖ The range and scope of questions to be included;
- ❖ Question type; for example, open or close ended;
- ❖ Content of individual questions;
- ❖ Question structure;
- ❖ Question wording ; and

❖ Question order;

Charlesworth & Morley (2000) as cited by Bless and Higson-Smith (2004) point out that the main aim of the questionnaire is to obtain information from every member in the sample. In order to secure accurate information the questionnaire should be clear and unbiased, easy to understand and should keep the respondents' interest and motivation. Bless and Higson-Smith (2004) recommends the following guidelines for the development of the questionnaire:

- ❖ Be as concise as possible;
- ❖ Have a logical structure with a clear focus and evolution from topic to topic. Commence with factual or background information; then proceed to explore the main areas of interest;
- ❖ Use simple questions free from unnecessary jargon, and overly complex language or question structure;
- ❖ Avoid ambiguous questions. These are questions that are linked and refer to more than one object in the same sentence;
- ❖ Use specific choice of answers. The Likert scale is the most widely used scale to capture respondent's agreement/disagreement. The scale comprises a five point verbal scale ranging from strongly agreeing to strongly disagreeing on either end of the continuum (this scale was used to capture respondents' responses in section 1 to 4 of the questionnaire).

In addition, consideration should also be given to the relationship between the type of questions and nature of the data generated by the questions. This has a major impact on how the responses can be analyzed. Babbie (2001) distinguishes three main categories of data as follows:

Nominal data is used to describe labels or categories such as male/female;
Ordinal data can be ranked or ordered and includes responses captured on a rating scale such as the Likert scale; and
Cardinal data has order, sequence and units of measurement.

Researchers therefore have to pay special attention to the questions and must anticipate the nature of the responses and how best to portray them. Salkind (2000) recommend that researchers carefully consider the format and structure of questions. Types of questions that could be included in a questionnaire are closed questions (pre coded), open-ended questions, multiple-choice questions, checklists, dichotomous questions that require a 'yes' or 'no' answer, ranking questions and scaled-response questions. Bless and Higson-Smith (2004) asserts that scaled-response questions, such as the Likert-type scale, are preferable to other forms of questions as they provide ordinal data.

The questionnaire used for the purpose of this research was constructed to meet the criteria suggested by Salkind (2000). The questionnaire was divided into four sections:

- ❖ Section 1 required respondents to provide biographical data that related to their organizational and individual information. Open-ended and multiple-choice questions were used to elicit the data.
- ❖ Section 2 was based on the theoretical stress model and sought to determine the degree to which respondents agreed or disagreed with each statement. Statements were formatted according to a five point Likert-type scale. The five point verbal scale utilized was as follows:

Strongly agree Agree Not sure Disagree Strongly disagree

Section 2 focused on the causes of stress among blue collar workers, with the following sub-headings as causes:

1. Job and organizational design.
2. Physical and working environment.
3. Relationships in the organization.
4. Violence that arises within the context of work and system of work.

❖ Section 3 looked at the different perceptions and conceptual framework as to how this stress could be managed or minimized and section 4 deals with the effects of stress on the organization and the employees. In order to make meaningful deductions from the data collected, special care should be taken in the design of the questionnaire as it contributes to the reliability and validity of the measuring instruments.

5.4.2 Validity, reliability and sensitivity of the measuring instruments

Grinnell (1981) argue that success of the research endeavor depends on the accuracy of the measurement instrument. Salkind (2000) supports this notion and attributes many of the flawed research efforts to grandiosely formulated questions that at face value appear sound but are neither valid nor reliable. The accuracy of the measuring instrument not only influences the accuracy of the results but also the conclusions drawn and generalizations made from the study. It is therefore, axiomatic that measuring instruments that are not valid or reliable will yield flawed results and if generalizations are made based on these results they will be misleading inferences.

5.4.3 Validity

Salkind (200) defines validity as quality of the measuring instrument in doing what it is supposed to do. Babbie (2001) describe validity as the extent to which the rating scale fully captures all aspects of the construct to be measured. Validity is normally referred to in relation to the outcome of a test and therefore various degrees of validity can be established. Grewal et al (1988) Parasuraman et al (2004) & Sekaran (1992) as cited by Salkind (2000), all describe various forms of validity that should be considered by researchers to ensure the authenticity and integrity (validity) of their research instruments. These forms of validity are summarized briefly below:

- ❖ **Content validity** also referred to as face validity, refers to how representative the scale or instrument is for the universe of the content of the property or characteristics that is being measured. Grinnell (1981) assert that validation involves using experts in the field to judge whether sufficient content regarding the topic is being covered.
- ❖ **Criterion validity** is established when the measure differences individual on a criterion it is expected to predict. This is done by establishing concurrent validity or predictive validity. Concurrent validity is established when the scale distinguishes who are known to be different. Predictive validity refers to the instrument's capacity to differentiate among individuals on a future criterion.
- ❖ **Construct validity** refers to how well the results obtained from the use of the instrument fits the theories around which it was designed. Construct validity comprises of three sub-strata namely convergent, discriminant and nomological validity. Convergent validity is established when scores of two different instruments measuring the same concept are highly correlated. Discriminant validity is achieved when based on theory, two variables are predicted to be uncorrelated, and the scores obtained are proven to be empirically so. Nomological validity involves relating measurements to a

theoretical model that leads to further deductions, interpretations and tests that allow constructs to be systematically interrelated.

- ❖ **Internal validity** refers to the freedom from researcher bias in forming conclusions in the view of collected data
- ❖ **External validity** refers to the extent that conclusions from the research can be generalized to the broader population, different settings, and times and not merely applied to the sample studied.

Grinnell (1981) emphasize that ultimately researchers should strive to achieve construct validity. However, they point out that this is seldom achieved and that content (face) and criterion validity are more often the only types of validity that are established. Special care was taken in the formulation of the measuring instrument utilized in this research study to comply with content, face and construct validity.

5.4.4 Reliability

Salkind (2000) maintain that a measuring instrument is reliable when it consistently yields the same results when administered under the same conditions at different times. They mention two measures used for measuring reliability, namely test-retest and split-half reliability. These two are briefly summarized below:

- ❖ **The test-retest reliability method** compares the results of two administrations of the measuring instrument to the same group of respondents at two different times
- ❖ **The split-half reliability** method measures the degree of consistency across items within a scale and can only be assessed for multiple-item scales. A

further measure is **Cronbach's alpha coefficient (r)** which is a statistical procedure that determines the correlation of each test item with each other. The closer the r is to 1 the bigger the chance that items in the instruments are measuring the same trait.

5.4.5 Sensitivity

Salkind (2000) describe sensitivity as being closely related to reliability and focus specifically on a scale's ability to detect subtle differences in the attitudes being measured. Reliability is a prerequisite for sensitivity. Therefore, when measuring instruments are reliable, it is difficult for researchers to conclude whether scores reflect real differences or merely random fluctuations. Measuring instruments must therefore firstly be reliable in order to be sensitive to subtle variations in responses. Special care was taken, in the construction of the measuring instrument used in this research study, you make sure that it complies with the same requirements of validity, reliability and sensitivity as outlined above.

5.5 Questionnaire covering letter

The covering letter is the first contact respondents will have with the questionnaire. It is therefore important that the covering letter sets the scene and addresses crucial concerns of the respondents. Babbie (2007) believes that the primary purpose of the covering letter is to win the co-operation of respondents. He asserts that what the covering letter says and how it says it can affect response rates. Leedy (1997) & Salkind (2000) underline the importance of covering letters and state that their primary role lies in addressing respondents concerns and conveying a sense of authority for the research project. Salkind (2000) suggests the following guidelines for designing a covering letter that addresses the above mentioned criteria:

- ❖ Use an official letterhead.

- ❖ The layout must be neat on good quality paper.
- ❖ It must have a recent date, which will signify urgency.
- ❖ The letter should be personalized. It must be addressed to the respondents in person therefore; addressing it to 'Dear respondent' should be avoided.
- ❖ The purpose of the questionnaire and the importance of the study must be conveyed
- ❖ A point in time estimate by which the questionnaire should be returned.
- ❖ Confidentiality must be indicated and how it will be maintained must be stated.
- ❖ Respondents should be offered a copy of the results, as this will further enhance their importance to the study.
- ❖ Thank respondents for their participation in the survey; and
- ❖ The covering letter must be signed by the researcher and supervisor. The supervisor's credentials and commitment will provide more credibility/authority to the research project.

Babbie (2001) assert that the same guidelines apply to online or e-mailed surveys. They however, caution that the guidelines for the covering letter, as mentioned above, should not become self-defeating by being too lengthy causing respondents to lose interest. Babbie et al (2007) report that e-mailed surveys are becoming more popular and are proving to be more efficient than conventional techniques. Data collected via electronic surveys also do not appear to indicate a reduction in data quality.

5.5.1 Pretesting the questionnaire

Grinnell (1981) regard pretesting of questionnaires as a necessity in an attempt to remove ambiguity and correct design flaws. Salkind (2004) points out that despite the care a researcher may have taken in the design of the questionnaire, mistakes may only be detected by external evaluation. By making use of pretesting, the researcher will be able to ascertain how respondents interpret, understand and react to the questions. Feedback from the respondents can be used to revise questions that may cause ambiguity and lead to misinterpretation. Thirty questionnaires were distributed in the pilot study and due to the feedback from the respondents some alterations were made in the design of the questionnaire.

Salkind (2000) points out that there is no standard specification for the number and nature of pretestings to be conducted. However, they suggest that the following guidelines in structuring pretesting be followed:

- ❖ One pretest regardless of the administration of the questionnaire method should be conducted using a personal interview. A face-to-face interview may reveal areas of confusion that would otherwise go unnoticed.
- ❖ A second pretest using the administration method should be conducted. This may divulge problems peculiar to the administration of the questionnaire.
- ❖ Pretesting should be conducted on a small sample of respondents who are familiar with the subject matter. The emphasis is on quality rather than quantity.
- ❖ Pretesting respondents should be similar to that of respondents who will ultimately participate in the study.
- ❖ The researcher's colleagues as well as potential users of the data should be selected for pretesting. Pretesting the questionnaire on colleagues can be

extremely useful, since they are likely to view it more critically than survey respondents.

The approach used to pretest the questionnaire in this study was as follows:

- ❖ The initial questionnaire was given to thirty blue collar road construction workers. A copy of the questionnaire was e-mailed to a statistician who assisted with the statistical analysis. Feedback received from these individuals was used to amend and refine the questionnaire.
- ❖ The amended questionnaire was sent (to test for difficulties that may be experienced in administration) to five workers who were representative of the population used in the empirical study.

A personal interview was then arranged with some of the workers to ascertain, first-hand, feedback on the administration and interpretation of the questionnaire. Finally, comments received from the workers were used to further refine the questionnaire before it was distributed to the target population.

5.5.2 Administering the questionnaire

The names and contact details of the organizations operating in the mining industry in Lesotho were obtained. The target population comprised of workers in the blue collar category. Babbie (2007) believe that a pre-survey contact is essential in approaching respondents and gaining their commitment. Each respondent in the target population was contacted facially, which is comprised of only blue collar workers, as it was therefore established that these respondents could be considered knowledgeable in this study of work stress among blue collar workers in the mining industry.

The rationale for selecting blue collar workers was due to the assumption that these individuals would be more likely to have high levels of stress than other employees because of the kind of work they do and the conditions under which they do it. It was further assumed that stressful working conditions are a result of worker dissatisfaction and work load. The research adhered to the guidelines relating to the development of the questionnaire and the covering letter as discussed in sections 5.4.1 and 5.5 respectively.

The following procedures were followed in administering the questionnaire:

- ❖ All potential respondents were contacted through the management in the form of a meeting that a questionnaire on management of work stress among blue collar workers would be forthcoming. All the questionnaires were hand delivered to the respondents. Babbie (2001) point out that a traditional survey may be used in the same way as e-mail surveys, however, e-mail surveys are proving to be more popular, cheap and relatively fast to conduct. Salkind (2000) cautions that e-mail surveys present similar problems as do traditional surveys. They may also yield a low response rate and may require follow-ups.
- ❖ The covering letter and the questionnaire were hand delivered to each prospective respondent.
- ❖ Upon receiving a response each person was thanked, as already done in the covering letter.
- ❖ A follow-up was made to remind non-respondents to complete the questionnaire
- ❖ A second follow-up was made after three weeks where the covering letter was presented to those who had not yet responded. Babbie (2001) advises that a third follow-up may be necessary where the response rate is low. In these circumstances, it is suggested, that a personal telephone call or even calling on the respondent in person may be considered.

5.6 Data analysis

Data analysis is the process of arranging the raw data into meaningful information. This is a specialized area of research conducted by experts. The data for this study was analyzed by the Statistics Department of the University of Fort Hare.

5.7 Conclusion

This chapter had dealt with the way the research was conducted and how the data was gathered from the respondents. Quantitative research was used in this study, and simple random sampling technique was used to draw a sample from the population of blue collar workers in the mining industry in Lesotho. Questionnaires were used to gather the information from the respondents.

CHAPTER SIX

Data presentation, analysis and interpretation

6.1 Introduction

The previous chapter described the methodology and design of the study. The population and sampling technique were described. Data collection instruments and their reliability and validity were also discussed. Questionnaires were used as data collection method. This chapter presents the data, analysis and interpretation of the data.

6.2 Analysis of biographical data

The following demographic data was obtained from the 153 respondents who completed the questionnaire from the Liqhobong mining company in Lesotho .

Figure 6.2.1 Gender of the respondents

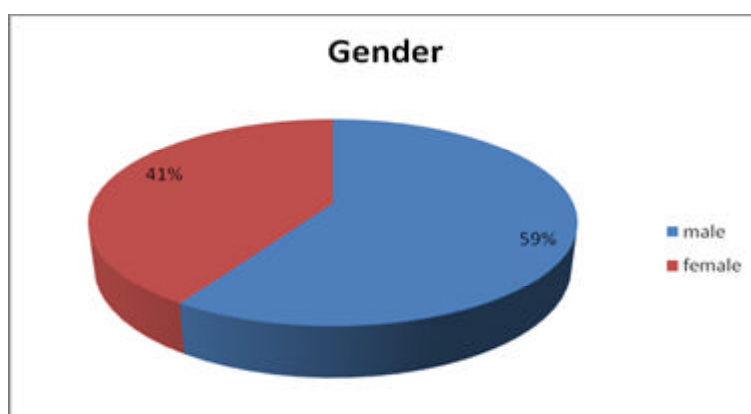
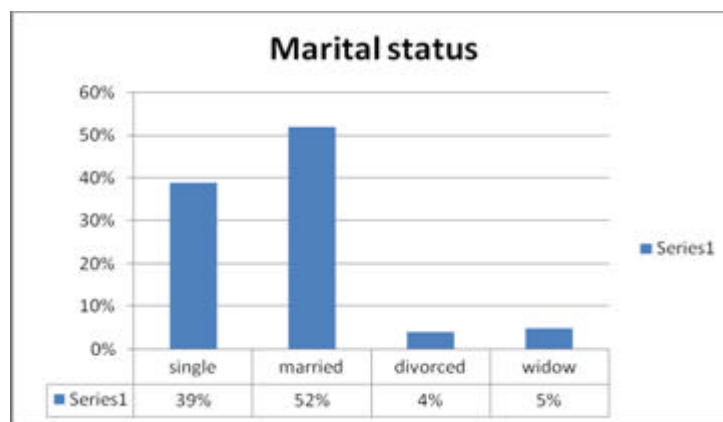


Table 6.2.1 Gender of the respondents

Respondents	Frequency	Per cent	Cumulative Frequency	Cumulative per cent
Male	90	58.82 %	153	100.00 %
Female	63	41.18 %	63	41.18 %

Figure 6.2.1 illustrates that of 153 responses, 63 (41 %) are female and 90 (59%) are male, and this shows that there is still a higher number of male workers than females in the mining industry. The results indicate that young single men experience lower levels of stress as they do not have any family responsibilities.

Figure 6.2.2 Marital status of the respondents



According to figure 6.2.2, 59 (39%) of the respondents were single, 80 (52%) married, 6 (4%) divorced and 8 (5%) were widowed. This supports that a high number of workers might be experiencing high levels of stress as they have other (family) responsibilities besides their work.

Figure 6.2.3 Age of the respondents

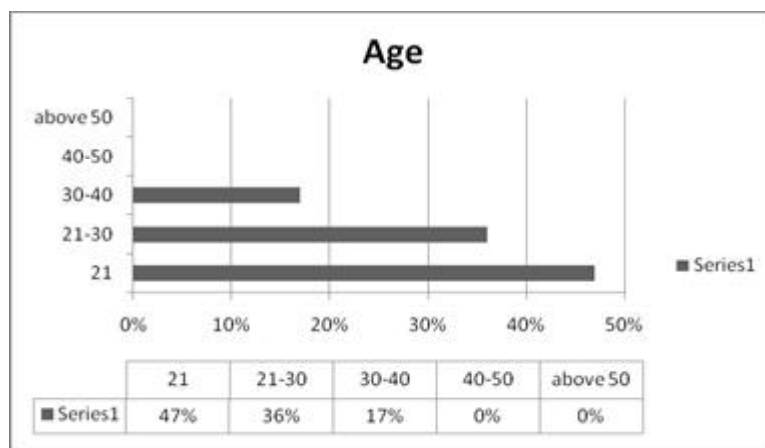


Table 6.2.3 Age of the respondents

Respondents	Frequency	Per cent	Cumulative Frequency	Cumulative per cent
21	72	47.06 %	72	47.02 %
21-30	55	35.95 %	127	83.01 %
30-40	26	16.99 %	153	100.00 %

Figure 6.2.3 shows that are aged 21 and those 21-30 were highly represented in this study as they reflect the highest representations of 72 (47%) and 55 (36%) respectively and age group 30-40 with 26 (17%) respondents. This supports that most respondents are single, and are likely to have lower levels of stress because they have fewer responsibilities to attend to.

Figure 6.2.4 Income level of the respondents

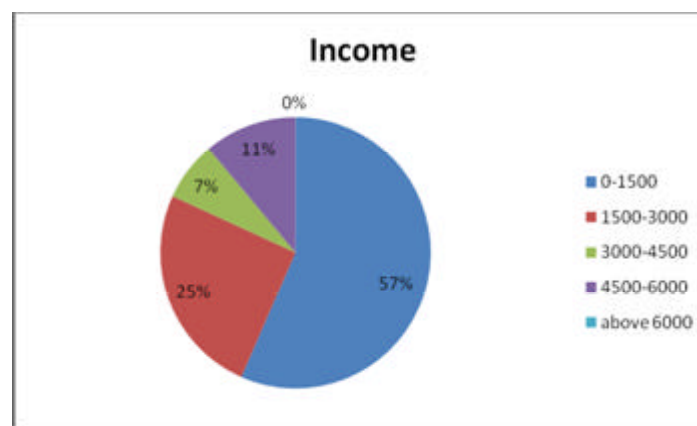
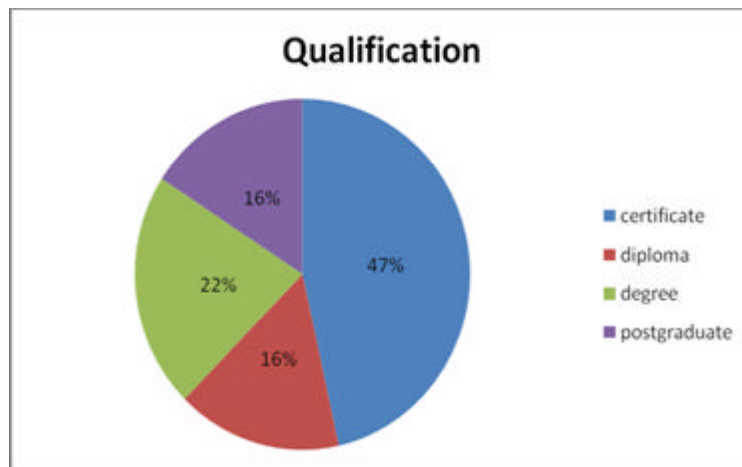


Figure 6.2.5 displays the response rate in relation to income, with 86 (57%) earning up to R1500, 39 (25%) earning between R1500-R3000, 11 (7%) earn R3000-R4500 and 17 (11%) earning R4500- R6000. The results show that 77% of the respondents earn less than R3000 and this could mean that there is a high level of stress among such respondents, low remuneration being a contributing factor to high levels stress.

Figure 6.2.5 Qualifications of the respondents



The results in Figure 6.2.5 indicate that 72 (47%) of the respondents have a tertiary certificate, 24 (16%) a diploma, 33 (22%) a degree and 24 (16%) have a postgraduate degrees. The high number of respondents with a certificate could support that high level of stress due to insufficient expertise to perform the tasks.

Figure 6.2.6 Positions of the respondents

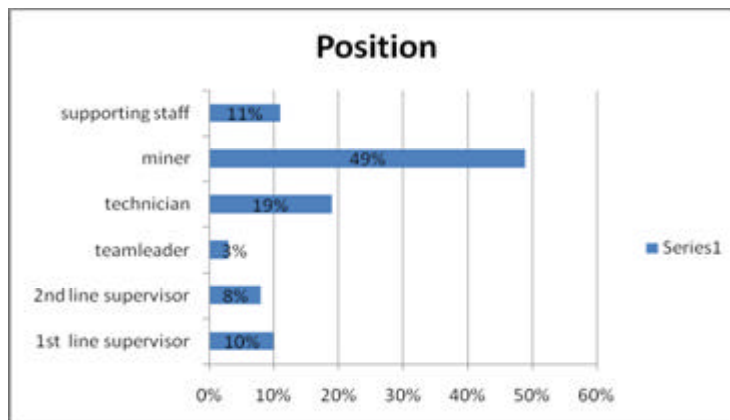


Table 6.2.6 Positions of the respondents

Respondents	Frequency	Per cent	Cumulative Freq.	Cumulative per cent
Supporting staff	17	11.11 %	153	100.00 %
Miner	75	49.02 %	136	88.89 %
Technician	29	18.95 %	61	39.87 %
Team leader	4	2.61 %	32	20.92 %
1 st line supervisor	12	7.84 %	28	18.30 %
2 nd line Supervisor	16	10.46 %	16	10.46 %

Table 6.2.6 indicates a high number of miners with (49.02 %) and this means that the study did get its information from the appropriate respondents, blue collar workers who were the focus of this study, The results indicate that high levels of stress is experienced by the workers, The respondents have shown that this high levels of stress are a result of the conditions under which they work.

6.3 The relationship between the demographic variables and the core variables (specifically the causes of stress in the workplace)

The chi-square test for independence was used to investigate whether there was an association between key demographic variables (Gender, Marital status, Age group, Ethnic group, Income level, Qualifications, Position and Experience/Duration) and whether they have an impact on the following causes of stress: job enlargement, rotation of managers, poor management, organizational change, poor communication, physical and sexual abuse, lack of job security and work over and underload. To find this relationship, demographics were used as dependent variables, while the key variables were used as an independent variable (covariate). The results of the test are shown in table 6.3.1 below and only significant relationships are discussed.

Table 6.3 The relationship between demographic variables, job enlargement, rotation of managers, and organizational change.

Respondents	Key variables	df	Chi-square	p-value
Gender	-Job enlargement	2	16.8885	0.0005
	-Rotation	2	9.1913	0.0101
Income level	-Job enlargement	6	24.8567	0.0004
	-Rotation	6	32.1828	0.0001
Qualifications	Job enlargement	6	24.3854	0.0004
	Rotation	6	20.0740	0.0027
	Org. change	6	25.4406	0.0003
Experience	Job enlargement	6	19.1819	0.0039
	Rotation	6	36.0644	0.0001
Position	Job enlargement	6	45.3015	0.0001
	Rotation	6	28.7578	0.0001
	Org. change	6	29.3115	0.0001

Table 6.3 shows that there was a significant relationship between job enlargement, managers rotation and organizational change and the abovementioned demographic variables as shown by an asterisk in the p-value of the table (gender and job enlargement, $p < 0.0005$; < 0.05 , gender and rotation of managers, $p < 0.0101$, < 0.05).

The results presented in Table 6.3 shows a significant correlation between gender and job enlargement which leads to stress. The extent of the problem is further confirmed by the odds ratios and their 95% confidence intervals. The table explains that all intervals do not contain one, this means there is a significant association at a 5% level of significance. These are used as confirmations of the p-value that are less than one.

The results agree with the available statistics which reflect that job enlargement causes stress in the work environment. The results depict that women experience higher levels of stress than men because they have more tasks to perform increases their responsibilities which leads to increase in stress levels. For example, Schultz et al (2006) noted that women come from home to their second job, in addition caring for their children and spouse and managing their household.

As women are associated with lower-clustered positions, they are likely to encounter job related stresses, such as increased paperwork, service, committee responsibilities, while low professional recognition contributes to the lower satisfaction levels of women. However, despite this gender gap in work stress, in general, women with paying jobs outside the home enjoy better health than full-time homemakers. Employed women score higher on measures of psychological well-being and have a lower risk of cardiovascular illness. The psychological and physical health advantages for employed women are greatest for women in higher status careers (Nelson & Burke, 2000).

This is also supported by the results concerning that position and job enlargement, $p < 0.0001 < 0.05$; rotation, $p < 0.0001 < 0.05$. Thus, it is well established that the total workload of women who are employed full-time is higher than that of full-time male workers, particularly where they have family responsibilities. Women are more vulnerable to work-related stress as a result of lower levels of control in their jobs, since the majority of women still tend to occupy lower and fewer jobs than men in the mining industry.

The results for income and job enlargement are $p < 0.0004, < 0.05$ and for income and managers, $p < 0.0001, < 0.05$. The results show a significant association between income and the key variables (job enlargement and rotation of managers). The results reveal that increasing the tasks that an employee performs and the remuneration that an employee receives has an impact on the

stress level. An employee who is performing more tasks than before also expects the income level will grow and if this is not the case, there is a possibility of being stressed. Once the worker faces stress it leads to a decrease in employee commitment to the tasks that he or she is performing. This also affects the effectiveness of the employee and has a negative impact on productivity.

Moreover, the rotation of managers and employees from one organization to another leads to stressful working conditions as workers have to start and try to cope with new managers and/or employees. Lazarus (1978) indicates that the rotation of employees can be classified as a stressful event, because it has characteristics similar to other events commonly considered to be stressful. It disrupts the routines of daily life and tears those routines loose from their social context. It is accompanied by feelings of anxiety uncertainty, lack of control and job security.

The results reveal that organizational change in the organization is stressful to the employees especially if the employees knew nothing of the change to take place. As employees react differently to stressful events, some employees see change as exciting and challenging and such employees are less vulnerable to stress than those who view change as a threat. The interpretation of the data show that many people resist change, preferring the familiar so that they will know what to expect.

Employees who were the least receptive to change also showed lower job satisfaction, a greater readiness to quit, and they display greater stress with aspects of their job (Bond and Bunce, 2003). The results reveal that change is good depending on how it is imposed in the organization. If change is imposed autocratically and employees are given no explanation or opportunity to participate, they are likely to react negatively and this negative attitude towards their work is stressful. Hence whenever there is to be change employees should be informed, they should be told the reason for implementing it, and be clear

about the benefits workers and the organization can expect from it, then the workers are likely to respond positively and accept the change.

(It is said that a happy worker is a productive worker, but the question is: what contributes to the employee's satisfaction with his work?).

The results of the study show that job satisfaction is another significant variable. A number of characteristics of the job and the workplace affect the satisfaction of employees in the working environment. Organizations can increase job satisfaction and improve productivity by redesigning jobs and the work environment and this could help for the management to reduce high levels of stress. Jobs can be redesigned to maximize opportunities to satisfy the needs for achievement, self-actualization, and personal growth. Jobs can be enriched to enhance the motivator needs and to provide higher levels of responsibility (Schultz et al, 2006).

The results indicate that there is a significant association between job satisfaction and age. In general, job satisfaction increases with age; this relationship holds for blue collar and white collar employees and for men and women employees. From the results, it may be inferred that many older workers have greater opportunities to find fulfillment and self-actualization on the job. Age and experience usually bring increased confidence, competence, esteem and responsibility. These feelings lead to a greater sense of accomplishment, so that older workers are more likely to have lower levels of stress than younger workers.

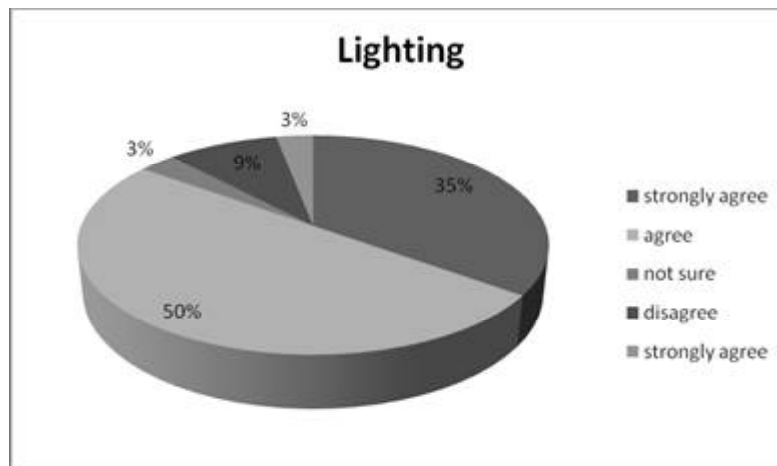
Job satisfaction and job experience are significantly correlated, according to (Eklund, 1995) during the initial stage of employment; new workers tend to be satisfied with their jobs. This period involves stimulation and the challenge of developing skills and abilities, and the work may seem attractive just because it is new. This early satisfaction wanes unless employees receive feedback on their progress and tangible evidence of their achievements, whereas to some workers

this is the most stressful time as the employees are new to the environment and do not know what is expected of them by the supervisors.

6.4 Questionnaire data on causes, management and effects of stress on blue collar workers in the mining industry.

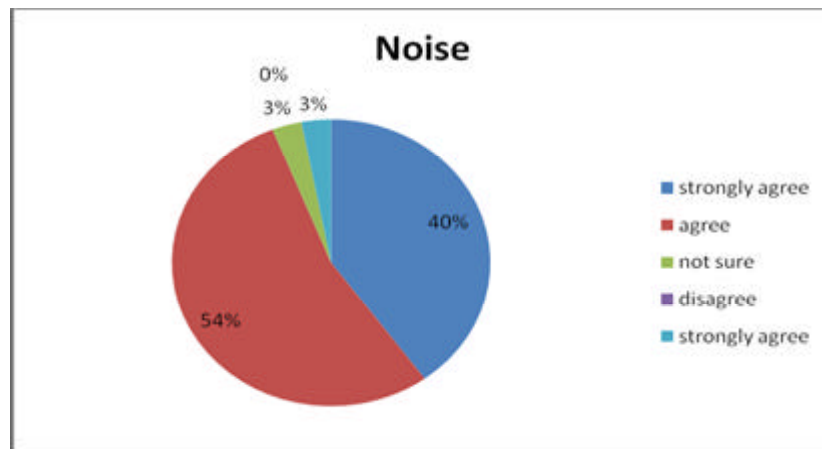
The following information provides the interpretation of the data from section B of the questionnaire obtained, from 153 respondents who participated in the study.

Figure 6.4.1 Response on poor lighting



In total 84.96 % of the respondents (see fig. 6.4.1) accepted that poor lighting leads to an increase in the stress levels of the employees in the workplace. Too little or too much light affects the way they performing their tasks while 11. 76 % did not agree that poor lighting causes stress.

Figure 6.4.2 Response on high levels of noise



The highest percentage 93.46 % (fig.6.4.2) agreed that high levels of noise in the work environment is stressful, it is irritating and nerve sacking, interferes with their sleep and produces psychological effects such as loss of hearing. It also precludes communication between employees and their supervisors; most noise is experienced by workers who work as riveters, boilermakers, aircraft mechanics and in the mining industry. However, (3.92 %) of the respondents do not agree that high levels of noise is stressful in the workplace.

6.4.3 Response on temperature

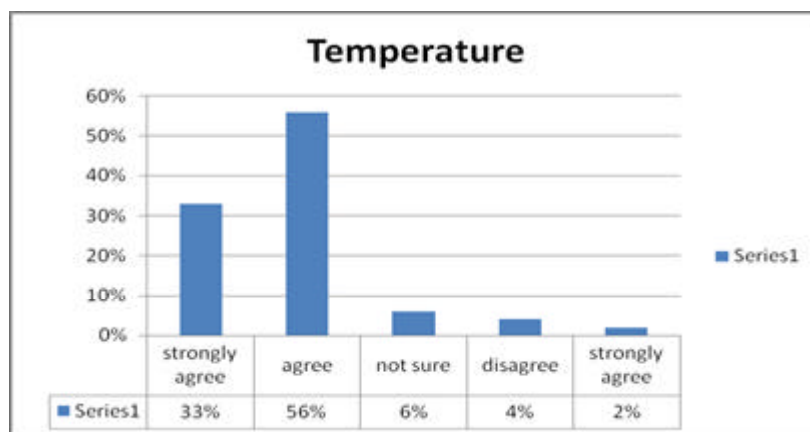


Figure 6.4.3 shows that the majority of the respondents (88.24 %) accept the view that temperature either heat or cold has an impact on the levels of stress.

Research shows that older employees are more affected than younger employees by climatic extremes and are more likely to be stressed by high temperatures. Yet (5.88 %) reject the view that temperature has anything to do with stress levels of the employees.

Figure 6.4.4 Respondents according to use of machinery

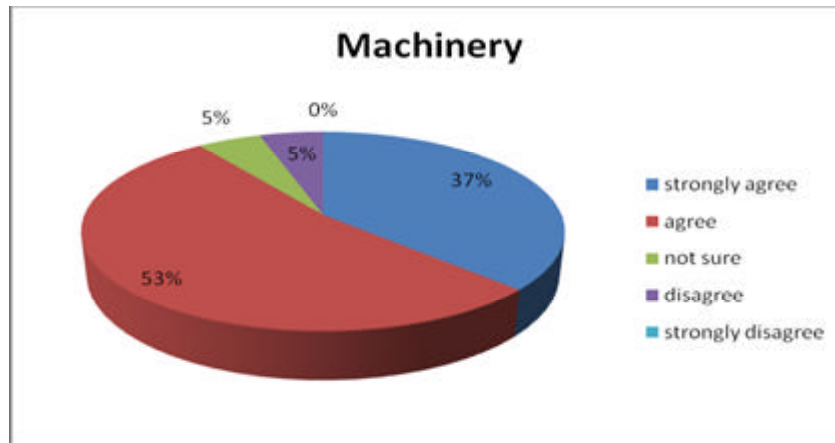
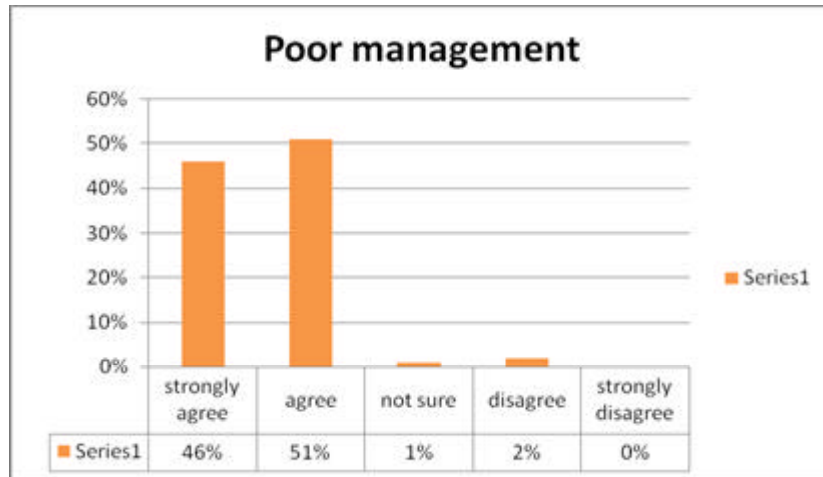


Figure 6.4.4 depicts that (89.54 %) of the respondents accept the view that the use of dangerous equipment and machinery is very stressful concerning the safety of the employees. There is a high death rate of workers in the mining industry and most often it is because of ignorance and management not informing the employees of the hazardous environment in which they are working. Yet (5.88 %) reject the view that the use of dangerous equipment and machinery is stressful.

Figure 6.4.5 Response on poor management



A high percentage of respondents 97 % (see fig. 6.4.5) agree the idea that poor management within the organization is stressful to employees. This reflects managers who cannot make proper decisions concerning the functioning of an organization, and who do not take care of the well-being for their fellow workers. Yet 3 % reject the idea that poor management can lead to increase in stress levels.

Figure 6.4.6 Respondents according to family problems

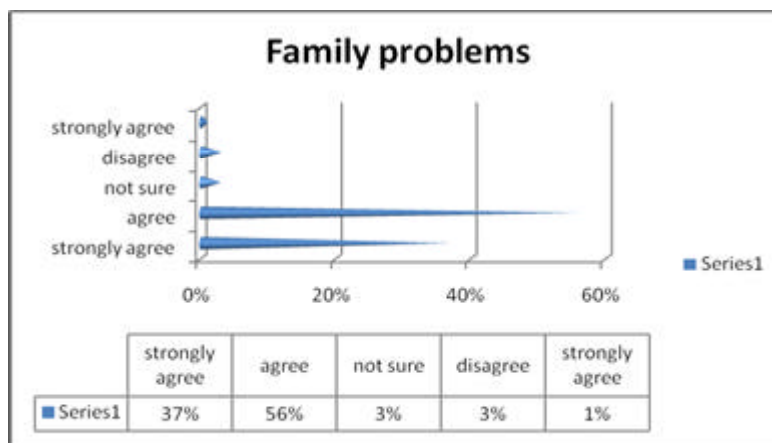
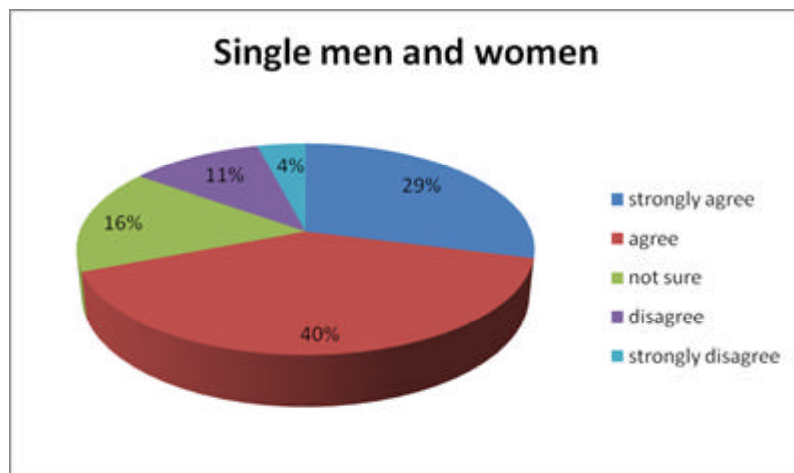


Figure 6.4.6 indicates that 93 % of the respondents agree that family problems experienced by the employees have an impact on the stress levels and that these levels affect employee job satisfaction and performance. Women are reported to experience more family conflict than men because of a number of responsibilities they perform at home and at work. Still, 3 % are of the opinion that family problems experienced by the workers do not have an impact on their stress levels.

Figure 6.4.7 Respondents' response on single and married employees



The majority of the respondents, 69 % (see fig. 6.4.7) agree that women have more stress than men; for example, women are typically paid less than men for the same work, moreover, opportunities for promotion are fewer. Women employees believe that they should work harder and be more outstanding on the job than men before they receive comparable rewards and this causes stress. Yet 15 % reject the idea that young single women and men face lower stress levels; they are of the opinion that stress affects all employees in the same way as long as they are performing similar tasks.

Figure 6.4.8 Respondents according to job security

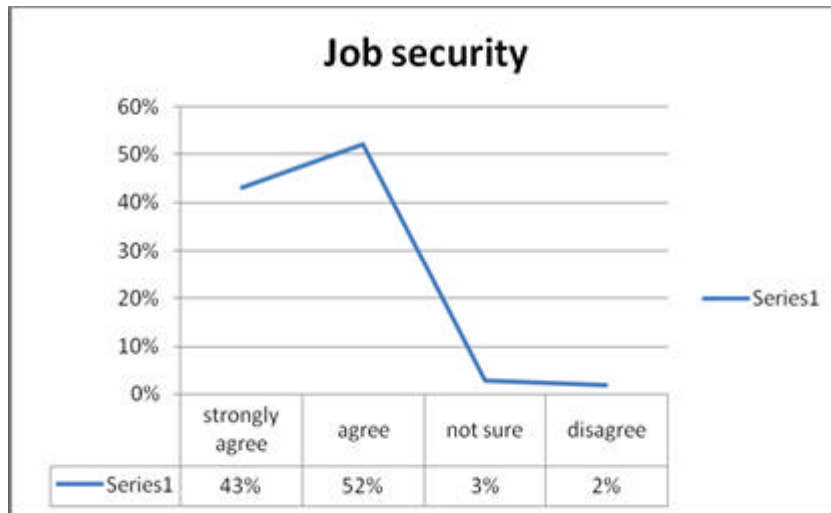


Figure 6.4.8 indicates that 95 % of the respondents agree that lack of job security in the workplace is stressful. They agree that lack of job security leads to lower job commitment and loss of motivation as the worker has no idea of how long he or she will be in the organization, and this causes stress.

Figure 6.4.9 Response on overload

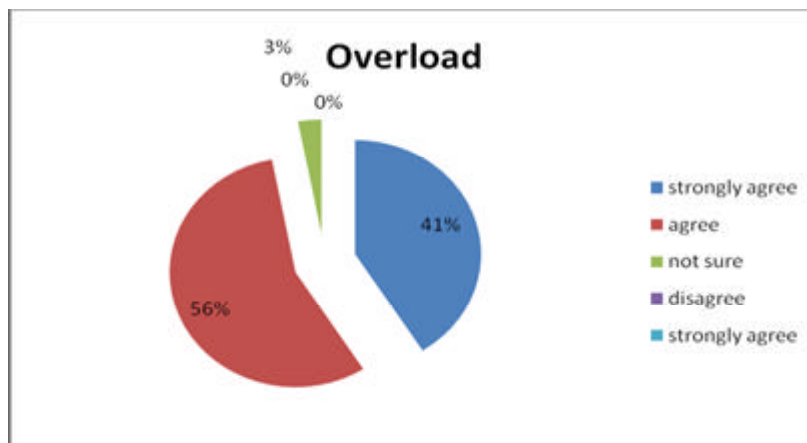


Figure 6.4.9 depicts that 97 % of the respondents agree that quantitative overload (to having too much work to perform) and qualitative overload (work that

is too difficult to perform) is very stressful. Overload is linked to psychological stress, burnout and poorer job performance, while 3 % of the respondents do not agree overload leads to stress.

Figure 6.4.10 Respondents response according to work underload

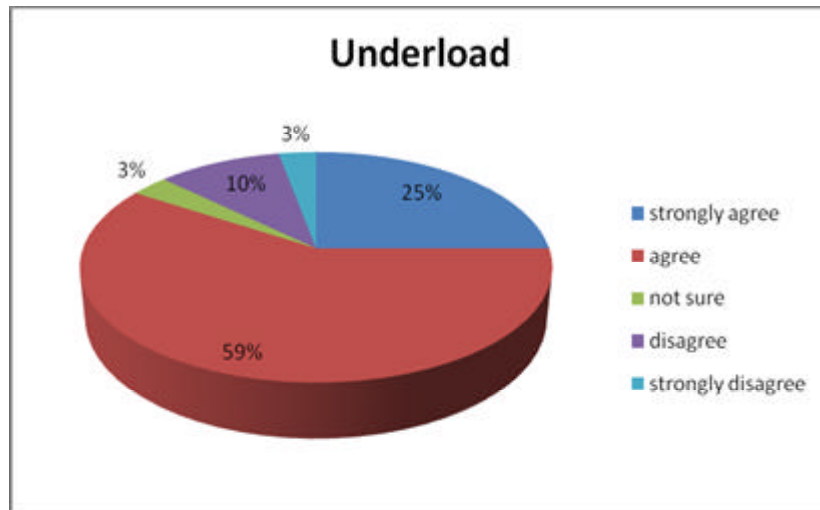
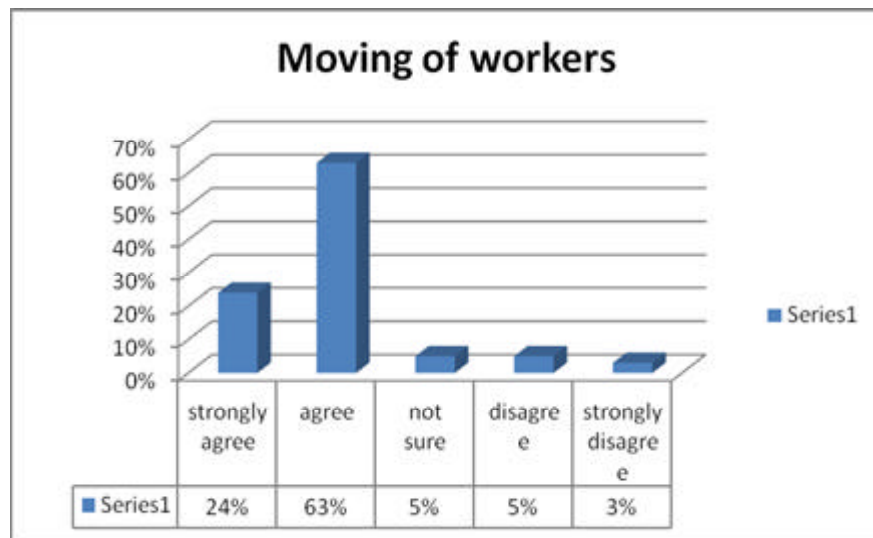


Figure 6.4.10 shows that 84 % of the respondents agree that having too little work or too simple tasks to challenge one's abilities is stressful. The results indicate that the absence of challenge in the working environment is not desirable, as it makes work become boring. This can happen in situations where organizations feel that they should limit the tasks that an employee performs only to find that some workers then become bored, as workers react differently to sources of stress in an organization.

Figure 6.4.11 Response on moving of workers



A high percentage of respondents 87 % (see fig. 6.4.11) agree that moving workers from one task to another or from one organization to another is stressful, as employees have to try and adjust to the new surrounding with different workers and values. It is very stressful for a worker to leave his family behind and work far away from their children and spouses.

Figure 6.4.12 Respondents response on sharing of tasks

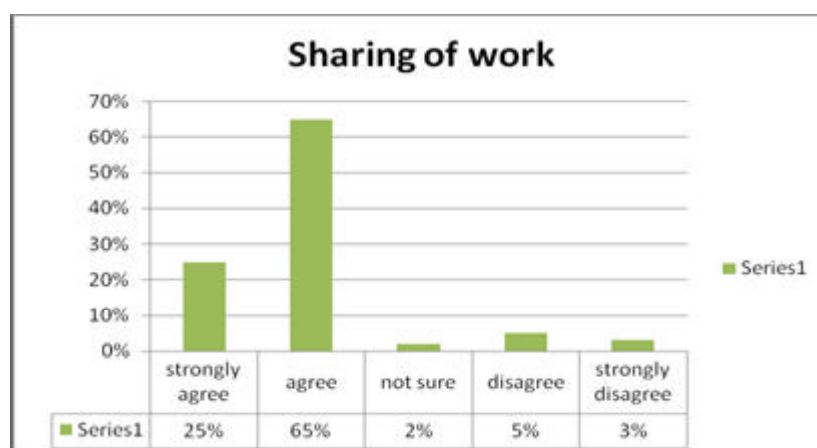
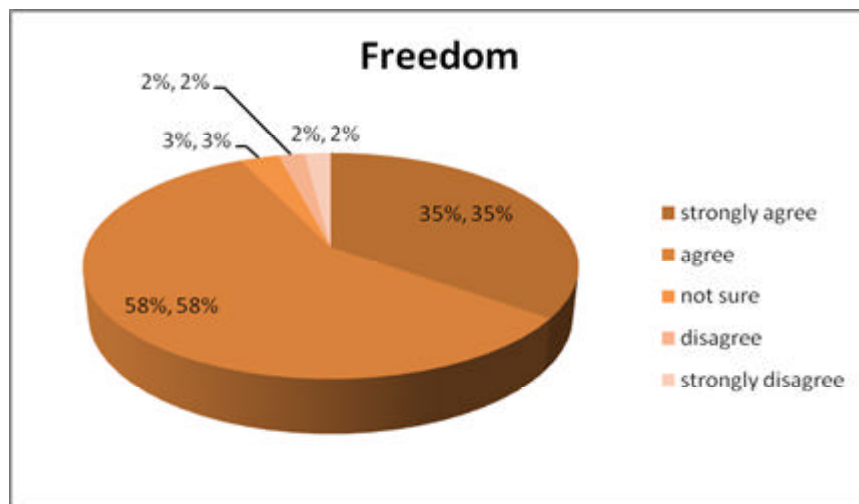


Figure 6.4.12 indicates that high percentage of respondents (90 %) agrees that when the sharing of tasks by employees can help in minimize the levels of stress in

the organization because it provides them with the opportunity to share their opinions concerning their work with other employees. Also some employees feel comfortable in disclosing their personal or family problems to their co-workers or friends rather than to their supervisors. This can also reduce the chances of employees being overloaded.

Figure 6.4.13 Response on giving employees freedom over their work



The results in figure 6.4.13 indicate that 93 % of the respondents agree that giving workers more freedom over their work will minimize the levels of stress. Workers want to make their own decisions as to how they should perform their tasks. It is important to provide assembly-line workers with freedom to work at a pace that they find natural and to choose the method they prefer for performing the work. Some limits and boundaries have to be set, but the fear sometimes expressed by management of lower production when goals are set by the workers themselves is unjustified.

Figure 6.4.14 Respondents according to solving of conflicts

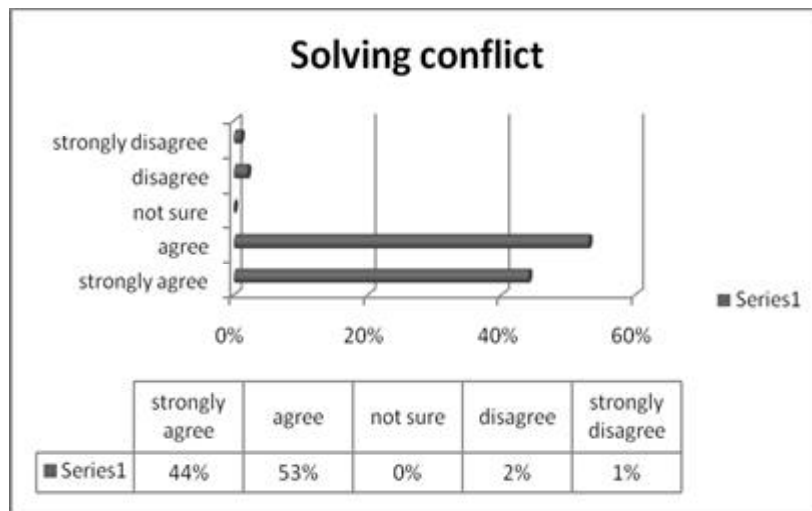
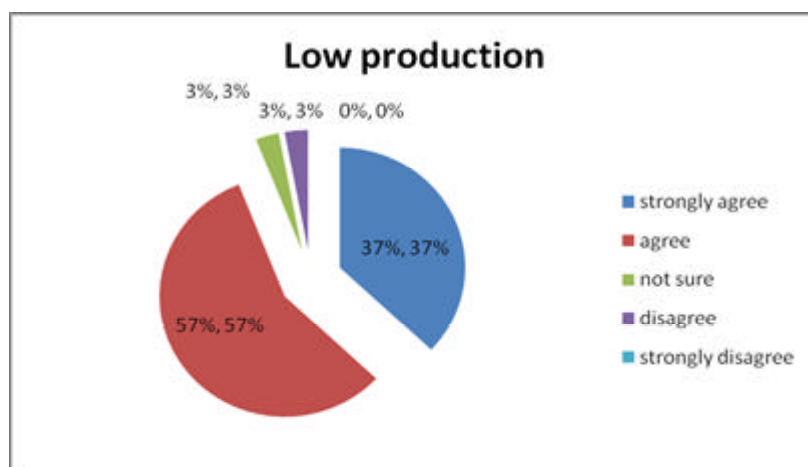


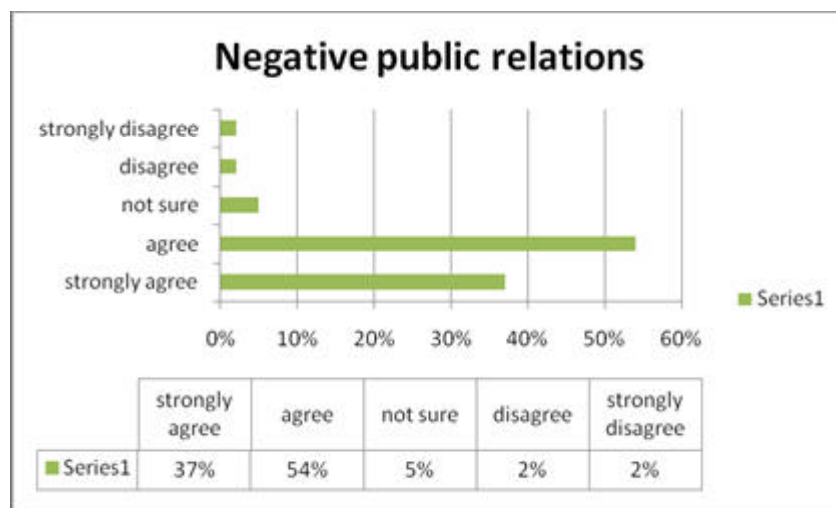
Figure 6.4.14 reveals that 97 % of the respondents accept the idea that solving conflict as it arises in the work environment decreases the levels of stress among the workers. When workers are faced with continuous conflict, they are very likely to experience stressful work situations. Conflict can either be between the workers themselves or with management or even with the external environment. Still 3 % do not agree that when conflicts are not solved immediately they lead to a stressful workplace.

Figure 6.4.15 Respondents' response on low production



The research findings in fig. 6.4.15 depict that high levels of stress in the organization have negative notable effects, It affects the effectiveness of the organization. It is generally understood that shortcomings in quality and time delivery are often due to low motivation from the workforce and that this, in turn, has its roots in stress levels of the employees. Workers time may be bought, but their engagement, productivity, motivation and interest in the work must be earned.

Figure 6.4.16 Respondents' response on negative relations with customers



The results in figure 6.4.16 indicate that 91 % of the respondents agree that employees experiencing high levels of stress have a negative attitude towards their work and towards the customers and this causes the customers to have a negative attitude towards the organization and as a result they turn their back on the organization and look for better one that serves them better.

6.5 Conclusion

This chapter has presented the statistical results of the study. Analysis of biographical data was provide and a statistical interpretation conducted to test the hypothesis. The following conclusions emanate from the study:

- ❖ There is a high level of stress in the mining industry, especially among assembly-line workers (blue collar workers). That stress is caused by both organizational and individual factors.
- ❖ Stress is very costly to organizations. Taking care of the employee's well-being will benefit the organization, particularly if it addresses those jobs and parts of the company that are mostly affected by stress.
- ❖ Several factors that cause stress, particularly role demands and organizational structure should be attended to by the management.

The next chapter provides conclusions and recommendations for organizations to help them deal with stress in the workplace.

CHAPTER SEVEN

Conclusion and Recommendations

7.1 Introduction

This study of the management of work stress among blue collar workers in Liqhobong Mining Development Company, intended to investigate and find solutions or strategies that can be implemented by organizations in managing work stress, since it cannot be eliminated completely, and also to measure the impact of stress on both the organization and the individual employee.

To investigate the above-mentioned problem, the investigator focused on the following three dimensions of the study (also stated in chapter 1.3) which are :

- ❖ To provide organizations with some insight into the potentially stressful working conditions among blue collar workers;
- ❖ To suggest some alternatives or courses of action that may serve to alleviate, minimize and help to cope with stressful working conditions;
- ❖ To determine the extent to which stress affects the employee and the organization.

Chapter six presented an analysis of the data and interpreted the information, and found out that stress cost organizations millions of Rands, because of poor performance by employees, labour turnover and absenteeism. The researcher also found that stress is not only dysfunctional, since a modest amount of stress may encourage an employee to perform better, especially when working towards a deadline; it may also lead to more creative employees in a competitive situation and generate new ideas as a matter of necessity. The study also found that when

stress turns into distress, it leads to negative consequences, like anxiety, depression and anger, which all have a negative effect on the performance of the employee, the productivity of the organization and increased absenteeism.

The main focus of this chapter is to draw conclusions and make recommendations towards alleviating the problem. In an attempt to address the issue of stress management among blue collar workers the researcher will make some conclusions and recommendations based on the findings.

7.2 Recommendations

Based on the findings of this study and the conclusions drawn, the researcher would encourage organizations to take good care of their employee's well-being because high levels of stress within the working environment is very costly and destructive to the proper functioning of the organization. Individual sources of job stress remained relatively minor, but overtime as these stressful events accumulate, the overall effect can become severe. As stress levels increase, job satisfaction and morale decreases.

Organizations are advised to implement the following measures in their working environments as a way to minimize the levels of stress in the workplace, being in possible to get rid of stress completely. Besides, it was found that moderate level of stress is acceptable.

- ❖ Give employees the opportunity to participate in the decision making process. This allows workers to express their feelings about their different tasks, how they can carry out their tasks. Moreover, it gives them the opportunity to say how they feel about their work, and what they like and what they dislike in the organization. In doing so employees feel part of the organization and valued by their superiors.

- ❖ Design jobs to provide meaning, stimulation (less monotony) and opportunities for employees to use their skills. Giving workers more tasks to perform gives them more challenge and this makes work more interesting, as doing one job over and over again is boring. Job enlargement and job enrichment are among the strategies that can be implemented to reduce monotony.
- ❖ Clearly define employees' roles and responsibilities. Providing workers with a clear job description will reduce role ambiguity and role conflict, as they will know exactly what is expected of them. Adequate orientation and socialization programmes will be helpful.
- ❖ Improve communication. This will reduce uncertainty and role ambiguity at work. This involves giving the employees the right to consult with management whenever necessary or whenever something bothers them whether about their work or other matters.
- ❖ Provide opportunity for social interaction among employees. Alienating employees from one another or from their fellow workers leads to stress. Employees should be given the opportunity to interact with one another. This is useful in terms of workers sharing their views about their work with each other. Some workers feel much better in sharing their problems with fellow workers than with anyone else and provide a form of social support.
- ❖ Establish work schedules that are compatible with demands and responsibilities outside the job. This involves giving workers enough time and family matters as well as their work.
- ❖ Provide employees with Employee Assistance Programmes, which helps employees to face and deal with problems that affect their work. Such programmes are useful in finding possible solutions to the problems that are

faced by the workers and they also increase trust between workers and management.

Organizations measures alone are not enough to stress, workers must also take some initiative in reducing their stress levels. Employees have a responsibility to do what they can to minimize stress. These are some of the recommended strategies that can be used by employees:

- ❖ Understand the nature and sources of stress. Having a clear understanding of stress can help employees cope better and knowing the sources of stress can help them to deal with stress, as they can try to avoid or gain control over what stresses to them.
- ❖ Manage time effectively and efficiently. Setting goals helps in managing time wisely. Such goals should be achievable, because setting goals that an employee cannot achieve is very stressful. They should categorize their goals in terms of their priority.
- ❖ Follow an appropriate lifestyle (nutrition, sleep and regular exercise). Living a healthy life reduces the level of stress, and eating nutritious food at the right time is very essential. Employees are also encouraged to have enough sleep and rest. Regular exercise too will help relax the body.
- ❖ Be systematic in decision-making and problem solving. Making the right decision at the right time is very crucial, as this reduces the chance of being stressed by having taken the wrong decisions. Conflicts and problems should be solved as they arise.

7.3 Future research direction

- ❖ The study concentrated mainly on blue collar workers and the researcher found that stress greatly affects them. Future research should focus on white collar workers to compare the results for the two classes of workers.
- ❖ This research was investigated the causes found to be controllable with proper management. Future research should investigate different strategies that can be taken by organizations to eliminate some of these causes especially such as can be avoided and prevented.

7.4 Limitations of the study

The distance was a limiting factor in conducting the study, since it required travelling to Lesotho. It was difficult to reach the company because the roads were covered with snow, moreover, the researcher faced financial problems but this limitation was overcome by getting financial assistance and this affected the time that the analyzing was supposed to be done.

Another limitation in conducting the study was the time factor. At the time of distribution of the questionnaires the company was undergoing reconstruction. The respondents took almost two and a half months to complete the questionnaire and this delayed the analysis of the data.

7.5 Conclusion

From the findings of the study, it may be concluded that stressful working conditions are very destructive to the proper functioning of the organization and the well-being of the employees. Therefore, it is recommended that organizations should take appropriate measures to control the sources of stress and implement strategies to manage it.

Conclusions about the study have been made and recommendations have been made in this chapter. Taking the recommendations into consideration will be useful in managing stress, I will be useful in discover and learn more about stress in the workplace.

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APPENDIX A

FACULTY OF MANAGEMENT AND COMMERCE
SCHOOL OF BUSINESS AND ENTERPRISE

DEPARTMENT OF INDUSTRIAL PSYCHOLOGY
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University of Fort Hare
Together in Excellence

Liqhobong Mining Development Company
Private bag A 447
Maseru
Lesotho

Sir/Madam

Request on granting access to your company for conducting research

The University of Fort Hare together with the National Council of Research, with their main aim of providing qualitative research, request if you could grant one of our master student, Tsalong M. K. (200193996) in the Department of Industrial Psychology at the University of Fort Hare permission and assistance to conduct research in your company as part of the fulfillment and completion of his Master's degree.

The research will be on: **“A Case study on: Managing work stress among blue collar workers in the Liqhobong Mining Development Company”**. A proposal attached will be discussed with the relative people. It will be highly appreciated if upon granting permission you could provide us with the contact person and contact details (telephone number, cell- phone number, e-mail), should the student need some information pertaining this study.

Your assistance on the above mentioned matter will be highly appreciated. If you need any information on the student, feel free to contact me at numbers and e-mail address as on letterhead.

Yours sincerely.

Mr. Andre Nel

Lecturer/ Supervisor: Masters Industrial Psychology
Department of Industrial Psychology
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APPENDIX B



DEPARTMENT OF INDUSTRIAL PSYCHOLOGY

Executive summary

Stress-related diseases are widespread among employees throughout the world. Physical problems associated with stress include high blood pressure, ulcers, heart disease and headaches. Schultz (2006, 353) says stress has been linked to an increase in infectious diseases and may be implicated in disorders that involve suppression of the immune system.

Stress is defined as a physiological and psychological response to excessive and usually unpleasant stimulation and to threatening events in the workplace is very costly to employers, as reflected in lower productivity, reduced motivation, increased errors and accidents. According to this information, this study is based on what causes stress, how can this stress be managed and, its effect on the organization and employee.

Please answer all the questions with utmost good faith by indicating the degree to which you agree or disagree with each statement. There are no wrong or right answers, your responses will be kept highly confidential and will be used only for academic purposes only.

Biographical information

I am Tsalong Molaoa Keketso (200193996) a master's student in the department of Industrial Psychology at the University of Fort Hare. As fulfillment for the completion of my studies, I am conducting a study on '**managing of work stress among blue collar workers** in the mining industry'. I will be willing to answer any question and do not hesitate to contact me on the following details.

Name : Tsalong Molaoa Keketso

E-mail : tslng@yahoo.com/tsalongtk@webmail.co.za

Telephone Number : (00266) 58073167

Cell Number : 0834352368

SECTION 1: BIOGRAPHICAL INFORMATION

1. Gender

Male	Female
------	--------

2. Marital status

Single	Married	Divorced	Widow
--------	---------	----------	-------

3. Age group

21	21-30	30-40	40-50	Above 50
----	-------	-------	-------	----------

4. Ethnic group

Black	Coloured	White	Indian	Other (specify).....
-------	----------	-------	--------	-------------------------

5. Income level

0-1500	1500-3000	3000-4500	4500-6000	Above 6000
--------	-----------	-----------	-----------	------------

6. Highest professional qualification

Certificate	Diploma	Degree	Postgraduate degree (specify).....
-------------	---------	--------	--

7. Position in the organization

First line supervisor	Second line supervisor	Team leader	Technician	Miner(underground)	Supporting staff
--------------------------	------------------------------	----------------	------------	--------------------	---------------------

8. How long have you been in your position?

SECTION 2: CAUSES OF STRESS AMONG BLUE COLLAR WORKERS.

In completing each statement in this section, carefully read the statement and indicate the degree to which you agree or disagree with each statement by ticking in the appropriate box with an (X).

Key:

- | | |
|-----------------------|----------------|
| 1. Strongly agree- SA | 2. Agree- A |
| 3. Not sure- NS | 4. Disagree- D |
| 5. Strongly disagree | |

2 (a) Job and organizational design

Stress is caused by.....	SA	A	NS	D	SD
9. Job enlargement strategies that are directed at increasing numbers of tasks that an employee performs.					
10. By the rotation of managers and non-managers from one job to another.					
11. The creating of opportunities for employees to gain more control in their jobs, make decisions on their own and solve problems.					
12. By providing employees with the opportunity to be accountable for the job.					
13. Team-based design aimed at providing a team rather than an individual with a whole and meaning piece of work to do can result in stressed employees.					

2 (b) (Physical and working environment

Causes of stress are.....	SA	A	NS	D	SD
14. Poor lighting in the organization.					
15. High levels of noise directly damaging the ears of the employees.					
16. High and low levels of temperature.					
17. Badly designed furniture and machinery.					
18. Poor management of the organization.					
19. Use of dangerous equipment and machinery by the employees.					

2 (c) Relationships in the organization

Stress is caused by.....	SA	A	NS	D	SD
20. Lack of social support, assistance and training					
21. Poor communication channels from the top management to the subordinates and from the subordinates to the management					
22. Physical or sexual harassment of workers by the supervisors.					
23. The management that does not sympathize with its workers in difficult times.					
24. High customer or client complaints about the organization.					

2 (d) Violence that arises within the context of work and system of work

Stress is caused by.....	SA	A	NS	D	SD
25. Verbal abuse from the line managers who lack supervisory skills.					
26. Sexual and racial harassment by managers and supervisors.					
27. Unnecessary application of workplace disciplinary codes by the management.					

2 (e) Personal and family problems

	SA	A	NS	D	SD
28. Stress is high among married women in the workplace.					
29. Divorced women and men are experiencing high levels of stress.					
30. Family problems taken to work by employees increase level of stress.					
31. Young single men and women experience lower levels of stress.					

2 (f) Work organization and conditions

Causes of stress are.....	SA	A	NS	D	SD
32. Lack of job security among employees.					
33. Continuous changes that are taking place in the organization.					
34. Low remuneration packages.					
35. Under promotion of employees.					
36. Lack of participation in the decision making process.					

2 (g) Work overload and work underload

	SA	A	NS	D	SD
37. Qualitative overload, which involves work that is too difficult to perform causes stress.					
38. Stress is caused by having too much work to do.					
39. Having work that is too simple or is insufficient to fill one's time or challenge one's ability is stressful.					
40. Work underload makes work monotonous and reduces job satisfaction and this leads to stress.					

SECTION 3: HOW STRESS CAN BE MANAGED AND MINIMIZED AMONG BLUE COLLAR WORKERS.

Carefully read each statement and indicate the degree to which you agree or disagree with each statement below. Tick with an (X) in the appropriate box.

3 (a) Provision of Employee Assistance Programmes (EAPs)

Stress is managed through.....	SA	A	NS	D	SD
41. Making assistance and services available and accessible to the employees.					
42. Collectively agreeing on policy statement that guarantees survival of the EAPs.					
43. Ensuring of quality service delivery.					
44. Using EAPs system rather than terminating an employee's service.					

3 (b) Redesigning of jobs

Stress can be managed by.....	SA	A	NS	D	SD
45. Moving of workers from one task to another.					
46. Rotating of workers, meaning more freedom at work.					
47. Sharing of work.					
48. Giving employees greater autonomy and authority over planning, execution and control of their own work.					
49. Providing workers with tasks or jobs that challenge their abilities and make fuller use of their training, expertise and skills.					
50. Allowing workers more freedom and control over the scheduling and pacing of their own work as opposed to machine paced work.					

3 (c) Improving of poor communication and social support

Stress can be managed by.....	SA	A	NS	D	SD
51. Keeping of open communication channels between the management and workers.					
52. Role clarification, giving employees clear details about their work.					
53. Giving employees greater autonomy in the decision making process.					
54. Solving conflicts a they arise.					

SECTION 4: EFFECT OF STRESS ON THE EMPLOYEE AND THE ORGANIZATION.4

(a) Effect of stress on the employee

	SA	A	NS	D	SD
55. Loss of creativity and stagnation of personal development.					
56. Loss of work motivation and pleasure.					
57. A decrease of quality of life and work, and personal well-being.					
58. Various psychological and physical complaints that can contribute to premature death.					

4 (b) Effect of stress on the organization

Notable effects of stress in the organization are.....	SA	A	NS	D	SD
59. Low production quality and quantity.					
60. Conflicts, ineffective co-operation, and disturbed relationships.					
61. High turnover of well-qualified employees who are hard to replace.					
62. Damage to the corporate image and negative public relations, making it hard to find new employees.					
63. High costs of sick leave and work disability, as well as hiring and training temporary replacements.					

I would like to thank you for the time that you spent filling this questionnaire and I hope the results of this study will be useful in improving the well-being of employees in order to achieve positive outcomes in your organizations.

Thank you.

APPENDIX C

Statistical data

The FREQuencies Procedure

gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
female	63	41.18	63	41.18
male	90	58.82	153	100.00

maritalst	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	59	38.56	59	38.56
2	80	52.29	139	90.85
3	6	3.92	145	94.77
4	8	5.23	153	100.00

age	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	72	47.06	72	47.06
2	55	35.95	127	83.01
3	26	16.99	153	100.00

ethnicity	Frequency	Percent	Cumulative Frequency	Cumulative Percent
black	143	93.46	143	93.46
nonblack	10	6.54	153	100.00

income	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	86	56.21	86	56.21
2	39	25.49	125	81.70
3	11	7.19	136	88.89
4	17	11.11	153	100.00

qualificatio	Frequency	Percent	Cumulative Frequency	Cumulative Percent
certific	72	47.06	72	47.06
degree	24	15.69	96	62.75
diploma	33	21.57	129	84.31
none	24	15.69	153	100.00

The FREQ Procedure

position	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	16	10.46	16	10.46
2	12	7.84	28	18.30
3	4	2.61	32	20.92
4	29	18.95	61	39.87
5	75	49.02	136	88.89
6	17	11.11	153	100.00

experience	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	53	34.64	53	34.64
2	20	13.07	73	47.71
3	16	10.46	89	58.17
4	64	41.83	153	100.00

enlargement	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	34	22.22	34	22.22
2	28	18.30	62	40.52
3	5	3.27	67	43.79
4	25	16.34	92	60.13
5	61	39.87	153	100.00

rotation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	25	16.34	25	16.34
2	27	17.65	52	33.99
3	7	4.58	59	38.56
4	34	22.22	93	60.78
5	60	39.22	153	100.00

opportunities	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	14	9.15	14	9.15
2	8	5.23	22	14.38
3	2	1.31	24	15.69
4	55	35.95	79	51.63
5	74	48.37	153	100.00

The FREQ Procedure

accountable	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	6	3.92	6	3.92
2	12	7.84	18	11.76
3	3	1.96	21	13.73
4	62	40.52	83	54.25
5	70	45.75	153	100.00

teambased	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	8	5.23	8	5.23
2	12	7.84	20	13.07
3	9	5.88	29	18.95
4	52	33.99	81	52.94
5	72	47.06	153	100.00

lighting	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	54	35.29	54	35.29
2	76	49.67	130	84.97
3	5	3.27	135	88.24
4	14	9.15	149	97.39
5	4	2.61	153	100.00

noise	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	61	39.87	61	39.87
2	82	53.59	143	93.46
3	4	2.61	147	96.08
4	2	1.31	149	97.39
5	4	2.61	153	100.00

temperature	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	50	32.68	50	32.68
2	85	55.56	135	88.24
3	9	5.88	144	94.12
4	6	3.92	150	98.04
5	3	1.96	153	100.00

The FREQ Procedure

machinery	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	56	36.60	56	36.60
2	81	52.94	137	89.54
3	7	4.58	144	94.12
4	8	5.23	152	99.35
5	1	0.65	153	100.00

pmanagement	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	70	45.75	70	45.75
2	78	50.98	148	96.73
3	2	1.31	150	98.04
4	3	1.96	153	100.00

danequip	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	64	41.83	64	41.83
2	75	49.02	139	90.85
3	5	3.27	144	94.12
4	7	4.58	151	98.69
5	2	1.31	153	100.00

socialsupport	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	70	45.75	70	45.75
2	78	50.98	148	96.73
4	1	0.65	149	97.39
5	4	2.61	153	100.00

pcomms	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	80	52.29	80	52.29
2	71	46.41	151	98.69
3	2	1.31	153	100.00

The FREQ Procedure

harrassment	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	76	49.67	76	49.67
2	68	44.44	144	94.12
3	4	2.61	148	96.73
4	5	3.27	153	100.00

sympathy	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	71	46.41	71	46.41
2	74	48.37	145	94.77
3	4	2.61	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

complaints	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	64	41.83	64	41.83
2	73	47.71	137	89.54
3	7	4.58	144	94.12
4	7	4.58	151	98.69
5	2	1.31	153	100.00

verbalabuse	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	77	50.33	77	50.33
2	73	47.71	150	98.04
3	1	0.65	151	98.69
4	2	1.31	153	100.00

racial	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	71	46.41	71	46.41
2	77	50.33	148	96.73
3	3	1.96	151	98.69
4	2	1.31	153	100.00

The FREQ Procedure

discipline	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	52	33.99	52	33.99
2	85	55.56	137	89.54
3	8	5.23	145	94.77
4	7	4.58	152	99.35
5	1	0.65	153	100.00

marriedw	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	19.61	30	19.61
2	51	33.33	81	52.94
3	12	7.84	93	60.78
4	22	14.38	115	75.16
5	38	24.84	153	100.00

divorced	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	49	32.03	49	32.03
2	70	45.75	119	77.78
3	18	11.76	137	89.54
4	15	9.80	152	99.35
5	1	0.65	153	100.00

problems	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	56	36.60	56	36.60
2	86	56.21	142	92.81
3	5	3.27	147	96.08
4	5	3.27	152	99.35
5	1	0.65	153	100.00

single	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	45	29.41	45	29.41
2	61	39.87	106	69.28
3	24	15.69	130	84.97
4	17	11.11	147	96.08
5	6	3.92	153	100.00

The FREQ Procedure

security	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	66	43.14	66	43.14
2	80	52.29	146	95.42
3	5	3.27	151	98.69
4	2	1.31	153	100.00

changes	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	52	33.99	52	33.99
2	83	54.25	135	88.24
3	8	5.23	143	93.46
4	8	5.23	151	98.69
5	2	1.31	153	100.00

remuneration	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	83	54.25	83	54.25
2	62	40.52	145	94.77
3	4	2.61	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

promotion	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	85	55.56	85	55.56
2	65	42.48	150	98.04
4	3	1.96	153	100.00

participation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	64	41.83	64	41.83
2	72	47.06	136	88.89
3	16	10.46	152	99.35
5	1	0.65	153	100.00

The FREQ Procedure

overload	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	62	40.52	62	40.52
2	85	55.56	147	96.08
3	5	3.27	152	99.35
4	1	0.65	153	100.00

muchwork	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	51	33.33	51	33.33
2	90	58.82	141	92.16
3	4	2.61	145	94.77
4	6	3.92	151	98.69
5	2	1.31	153	100.00

insufficient	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	40	26.14	40	26.14
2	88	57.52	128	83.66
3	4	2.61	132	86.27
4	18	11.76	150	98.04
5	3	1.96	153	100.00

underload	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	39	25.49	39	25.49
2	90	58.82	129	84.31
3	4	2.61	133	86.93
4	15	9.80	148	96.73
5	5	3.27	153	100.00

assitance	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	44	28.76	44	28.76
2	95	62.09	139	90.85
3	8	5.23	147	96.08
4	5	3.27	152	99.35
5	1	0.65	153	100.00

The FREQ Procedure

survival	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	47	30.72	47	30.72
2	102	66.67	149	97.39
3	2	1.31	151	98.69
4	1	0.65	152	99.35
5	1	0.65	153	100.00

delivery	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	50	32.68	50	32.68
2	99	64.71	149	97.39
3	4	2.61	153	100.00

terminating	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	50	32.68	50	32.68
2	95	62.09	145	94.77
3	4	2.61	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

moving	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	36	23.53	36	23.53
2	97	63.40	133	86.93
3	8	5.23	141	92.16
4	8	5.23	149	97.39
5	4	2.61	153	100.00

rotating	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	19.61	30	19.61
2	95	62.09	125	81.70
3	5	3.27	130	84.97
4	16	10.46	146	95.42
5	7	4.58	153	100.00

The FREQ Procedure

sharing	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	38	24.84	38	24.84
2	100	65.36	138	90.20
3	3	1.96	141	92.16
4	8	5.23	149	97.39
5	4	2.61	153	100.00

autonomy	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	47	30.72	47	30.72
2	95	62.09	142	92.81
3	4	2.61	146	95.42
4	5	3.27	151	98.69
5	2	1.31	153	100.00

expertise	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	49	32.03	49	32.03
2	96	62.75	145	94.77
3	2	1.31	147	96.08
4	4	2.61	151	98.69
5	2	1.31	153	100.00

freedom	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	53	34.64	53	34.64
2	89	58.17	142	92.81
3	5	3.27	147	96.08
4	3	1.96	150	98.04
5	3	1.96	153	100.00

channels	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	74	48.37	74	48.37
2	69	45.10	143	93.46
3	4	2.61	147	96.08
4	3	1.96	150	98.04
5	3	1.96	153	100.00

The FREQ Procedure

clarification	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	81	52.94	81	52.94
2	69	45.10	150	98.04
3	1	0.65	151	98.69
4	2	1.31	153	100.00

employee esa	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	72	47.06	72	47.06
2	75	49.02	147	96.08
3	6	3.92	153	100.00

conflicts	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	68	44.44	68	44.44
2	81	52.94	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

stagnation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	49	32.03	49	32.03
2	89	58.17	138	90.20
3	12	7.84	150	98.04
5	3	1.96	153	100.00

motivation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	42	27.45	42	27.45
2	106	69.28	148	96.73
3	1	0.65	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

The FREQ Procedure

decrease	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	45	29.41	45	29.41
2	104	67.97	149	97.39
3	1	0.65	150	98.04
4	2	1.31	152	99.35
5	1	0.65	153	100.00

psychological	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	47	30.72	47	30.72
2	100	65.36	147	96.08
3	2	1.31	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

lproduction	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	56	36.60	56	36.60
2	87	56.86	143	93.46
3	6	3.92	149	97.39
4	4	2.61	153	100.00

disturbed	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	68	44.44	68	44.44
2	79	51.63	147	96.08
3	4	2.61	151	98.69
4	2	1.31	153	100.00

turnover	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	62	40.52	62	40.52
2	84	54.90	146	95.42
3	3	1.96	149	97.39
4	3	1.96	152	99.35
5	1	0.65	153	100.00

The FREQ Procedure

publicrelations	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	56	36.60	56	36.60
2	83	54.25	139	90.85
3	8	5.23	147	96.08
4	3	1.96	150	98.04
5	3	1.96	153	100.00

sickleave	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	60	39.22	60	39.22
3	2	1.31	148	96.73
2	86	56.21	146	95.42
4	4	2.61	152	99.35
5	1	0.65	153	100.

APPENDIX D

Associations

The FREQ Procedure

Table of gender by enlargement

gender	enlargement			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
female	37	3	23	63
	24.18	1.96	15.03	41.18
	58.73	4.76	36.51	
	59.68	60.00	26.74	
male	25	2	63	90
	16.34	1.31	41.18	58.82
	27.78	2.22	70.00	
	40.32	40.00	73.26	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of gender by enlargement

Statistic	DF	Value	Prob
Chi-Square	2	16.8885	0.0002
Likelihood Ratio Chi-Square	2	17.0902	0.0002
Mantel-Haenszel Chi-Square	1	16.2194	<.0001
Phi Coefficient		0.3322	
Contingency Coefficient		0.3153	
Cramer's V		0.3322	

enlargement

Table of ethnicity by

ethnicity	enlargement			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1,	2,	3,	Total
black	54	5	84	143
	35.29	3.27	54.90	93.46
	37.76	3.50	58.74	
	87.10	100.00	97.67	
nonblack	8	0	2	10
	5.23	0.00	1.31	6.54
	80.00	0.00	20.00	
	12.90	0.00	2.33	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of ethnicity by enlargement

Statistic	DF	Value	Prob
Chi-Square	2	6.9601	0.0308
Likelihood Ratio Chi-Square	2	7.2075	0.0272
Mantel-Haenszel Chi-Square	1	6.4589	0.0110
Phi Coefficient		0.2133	
Contingency Coefficient		0.2086	
Cramer's V		0.2133	

Table of income by enlargement

income	enlargement			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	25	1	60	86
	16.34	0.65	39.22	56.21
	29.07	1.16	69.77	
	40.32	20.00	69.77	
2	18	0	21	39
	11.76	0.00	13.73	25.49
	46.15	0.00	53.85	
	29.03	0.00	24.42	
3	8	2	1	11
	5.23	1.31	0.65	7.19
	72.73	18.18	9.09	
	12.90	40.00	1.16	
4	11	2	4	17
	7.19	1.31	2.61	11.11
	64.71	11.76	23.53	
	17.74	40.00	4.65	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of income by enlargement

Statistic	DF	Value	Prob
Chi-Square	6	32.4668	<.0001
Likelihood Ratio Chi-Square	6	31.1675	<.0001
Mantel-Haenszel Chi-Square	1	16.8123	<.0001
Phi Coefficient		0.4607	
Contingency Coefficient		0.4184	
Cramer's V		0.3257	

The FREQ Procedure

Table of qualificatio by enlargement

qualificatio	enlargement			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
certific	30	1	41	72
	19.61	0.65	26.80	47.06
	41.67	1.39	56.94	
	48.39	20.00	47.67	
degree	14	4	6	24
	9.15	2.61	3.92	15.69
	58.33	16.67	25.00	
	22.58	80.00	6.98	
diploma	16	0	17	33
	10.46	0.00	11.11	21.57

	48.48	0.00	51.52	
	25.81	0.00	19.77	
none	2	0	22	24
	1.31	0.00	14.38	15.69
	8.33	0.00	91.67	
	3.23	0.00	25.58	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of qualificatio by enlargement

Statistic	DF	Value	Prob
Chi-Square	6	34.0432	<.0001
Likelihood Ratio Chi-Square	6	32.5050	<.0001
Mantel-Haenszel Chi-Square	1	4.2963	0.0382
Phi Coefficient		0.4717	
Contingency Coefficient		0.4266	
Cramer's V		0.3335	

Table of position by enlargement

position	enlargement			Total
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	
1	26	3	3	32
	16.99	1.96	1.96	20.92
	81.25	9.38	9.38	
	41.94	60.00	3.49	
2	10	1	18	29
	6.54	0.65	11.76	18.95
	34.48	3.45	62.07	
	16.13	20.00	20.93	
3	14	1	60	75
	9.15	0.65	39.22	49.02
	18.67	1.33	80.00	
	22.58	20.00	69.77	
4	12	0	5	17
	7.84	0.00	3.27	11.11
	70.59	0.00	29.41	
	19.35	0.00	5.81	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of position by enlargement

Statistic	DF	Value	Prob
Chi-Square	6	53.4507	<.0001
Likelihood Ratio Chi-Square	6	57.9010	<.0001
Mantel-Haenszel Chi-Square	1	14.2492	0.0002
Phi Coefficient		0.5911	
Contingency Coefficient		0.5088	
Cramer's V		0.4179	

WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Sample Size = 153

Table of experience by enlargement

experience	enlargement			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	23	3	27	53
	15.03	1.96	17.65	34.64
	43.40	5.66	50.94	
	37.10	60.00	31.40	
2	15	1	4	20
	9.80	0.65	2.61	13.07
	75.00	5.00	20.00	
	24.19	20.00	4.65	
3	10	1	5	16
	6.54	0.65	3.27	10.46
	62.50	6.25	31.25	
	16.13	20.00	5.81	
4	14	0	50	64
	9.15	0.00	32.68	41.83
	21.88	0.00	78.13	
	22.58	0.00	58.14	
Total	62	5	86	153
	40.52	3.27	56.21	100.00

Statistics for Table of experience by enlargement

Statistic	DF	Value	Prob
Chi-Square	6	29.1811	<.0001
Likelihood Ratio Chi-Square	6	31.9406	<.0001
Mantel-Haenszel Chi-Square	1	9.2366	0.0024
Phi Coefficient		0.4367	
Contingency Coefficient		0.4002	
Cramer's V		0.3088	

The FREQ Procedure

Table of gender by rotation

gender	rotation			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
female	30	3	30	63
	19.61	1.96	19.61	41.18
	47.62	4.76	47.62	
	57.69	42.86	31.91	
male	22	4	64	90
	14.38	2.61	41.83	58.82
	24.44	4.44	71.11	
	42.31	57.14	68.09	
Total	52	7	94	153
	33.99	4.58	61.44	100.00

Statistics for Table of gender by rotation

Statistic	DF	Value	Prob
Chi-Square	2	9.1931	0.0101
Likelihood Ratio Chi-Square	2	9.1704	0.0102
Mantel-Haenszel Chi-Square	1	9.1227	0.0025
Phi Coefficient		0.2451	
Contingency Coefficient		0.2381	
Cramer's V		0.2451	

Table of income by rotation

income	rotation			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	21	2	63	86
	13.73	1.31	41.18	56.21
	24.42	2.33	73.26	
	40.38	28.57	67.02	
2	14	1	24	39
	9.15	0.65	15.69	25.49
	35.90	2.56	61.54	
	26.92	14.29	25.53	
3	8	0	3	11
	5.23	0.00	1.96	7.19
	72.73	0.00	27.27	
	15.38	0.00	3.19	
4	9	4	4	17
	5.88	2.61	2.61	11.11
	52.94	23.53	23.53	
	17.31	57.14	4.26	
Total	52	7	94	153
	33.99	4.58	61.44	100.00

Statistics for Table of income by rotation

Statistic	DF	Value	Prob
Chi-Square	6	32.1828	<.0001
Likelihood Ratio Chi-Square	6	26.7252	0.0002
Mantel-Haenszel Chi-Square	1	15.3585	<.0001
Phi Coefficient		0.4586	
Contingency Coefficient		0.4169	
Cramer's V		0.3243	

Table of qualification by rotation

qualification	rotation			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
certific	27	1	44	72
	17.65	0.65	28.76	47.06
	37.50	1.39	61.11	
	51.92	14.29	46.81	
degree	12	3	9	24
	7.84	1.96	5.88	15.69
	50.00	12.50	37.50	
	23.08	42.86	9.57	
diploma	11	3	19	33
	7.19	1.96	12.42	21.57
	33.33	9.09	57.58	
	21.15	42.86	20.21	

none	2	0	22	24
	1.31	0.00	14.38	15.69
	8.33	0.00	91.67	
	3.85	0.00	23.40	
Total	52	7	94	153
	33.99	4.58	61.44	100.00

Statistics for Table of qualificatio by rotation

Statistic	DF	Value	Prob
Chi-Square	6	20.0740	0.0027
Likelihood Ratio Chi-Square	6	22.0758	0.0012
Mantel-Haenszel Chi-Square	1	4.5894	0.0322
Phi Coefficient		0.3622	
Contingency Coefficient		0.3406	
Cramer's V		0.2561	

Table of position by rotation

position	rotation			
Frequency,				
Percent				
ROW Pct				
Col Pct	1	2	3	Total
1	19	3	10	32
	12.42	1.96	6.54	20.92
	59.38	9.38	31.25	
	36.54	42.86	10.64	
2	11	2	16	29
	7.19	1.31	10.46	18.95
	37.93	6.90	55.17	
	21.15	28.57	17.02	
3	13	1	61	75
	8.50	0.65	39.87	49.02
	17.33	1.33	81.33	
	25.00	14.29	64.89	
4	9	1	7	17
	5.88	0.65	4.58	11.11
	52.94	5.88	41.18	
	17.31	14.29	7.45	
Total	52	7	94	153
	33.99	4.58	61.44	100.00

Statistics for Table of position by rotation

Statistic	DF	Value	Prob
Chi-Square	6	28.7578	<.0001
Likelihood Ratio Chi-Square	6	29.7290	<.0001
Mantel-Haenszel Chi-Square	1	8.4227	0.0037
Phi Coefficient		0.4335	
Contingency Coefficient		0.3978	
Cramer's V		0.3066	

Table of experience by rotation

experience	rotation			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	22	0	31	53
	14.38	0.00	20.26	34.64
	41.51	0.00	58.49	
	42.31	0.00	32.98	
2	11	2	7	20
	7.19	1.31	4.58	13.07
	55.00	10.00	35.00	
	21.15	28.57	7.45	
3	7	4	5	16
	4.58	2.61	3.27	10.46
	43.75	25.00	31.25	
	13.46	57.14	5.32	
4	12	1	51	64
	7.84	0.65	33.33	41.83
	18.75	1.56	79.69	
	23.08	14.29	54.26	
Total	52	7	94	153
	33.99	4.58	61.44	100.00

Statistics for Table of experience by rotation

Statistic	DF	Value	Prob
Chi-Square	6	36.0644	<.0001
Likelihood Ratio Chi-Square	6	32.0559	<.0001
Mantel-Haenszel Chi-Square	1	7.3680	0.0066
Phi Coefficient		0.4855	
Contingency Coefficient		0.4368	
Cramer's V		0.3433	

The FREQ Procedure

Table of maritalst by opportunities

maritalst	opportunities			Total
Frequency, Percent Row Pct Col Pct	1,	2,	3,	
1	7	1	51	59
	4.58	0.65	33.33	38.56
	11.86	1.69	86.44	
	31.82	50.00	39.53	
2	11	0	69	80
	7.19	0.00	45.10	52.29
	13.75	0.00	86.25	
	50.00	0.00	53.49	
3	3	0	3	6
	1.96	0.00	1.96	3.92
	50.00	0.00	50.00	
	13.64	0.00	2.33	
4	1	1	6	8
	0.65	0.65	3.92	5.23
	12.50	12.50	75.00	
	4.55	50.00	4.65	
Total	22	2	129	153
	14.38	1.31	84.31	100.00

Statistics for Table of maritalst by opportunities

Statistic	DF	Value	Prob
Chi-Square	6	15.4422	0.0171
Likelihood Ratio Chi-Square	6	9.6919	0.1382
Mantel-Haenszel Chi-Square	1	1.4958	0.2213
Phi Coefficient		0.3177	
Contingency Coefficient		0.3028	
Cramer's V		0.2246	

Table of income by opportunities				
income	opportunities			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	8	1	77	86
	5.23	0.65	50.33	56.21
	9.30	1.16	89.53	
	36.36	50.00	59.69	
2	4	1	34	39
	2.61	0.65	22.22	25.49
	10.26	2.56	87.18	
	18.18	50.00	26.36	
3	5	0	6	11
	3.27	0.00	3.92	7.19
	45.45	0.00	54.55	
	22.73	0.00	4.65	
4	5	0	12	17
	3.27	0.00	7.84	11.11
	29.41	0.00	70.59	
	22.73	0.00	9.30	
Total	22	2	129	153
	14.38	1.31	84.31	100.00

Statistics for Table of income by opportunities

Statistic	DF	Value	Prob
Chi-Square	6	14.7648	0.0222
Likelihood Ratio Chi-Square	6	12.1431	0.0589
Mantel-Haenszel Chi-Square	1	8.3112	0.0039
Phi Coefficient		0.3106	
Contingency Coefficient		0.2967	
Cramer's V		0.2197	

Table of income by accountable

income	accountable			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	10	0	76	86
	6.54	0.00	49.67	56.21
	11.63	0.00	88.37	
	55.56	0.00	57.58	
2	2	0	37	39
	1.31	0.00	24.18	25.49
	5.13	0.00	94.87	
	11.11	0.00	28.03	
3	2	3	6	11
	1.31	1.96	3.92	7.19
	18.18	27.27	54.55	
	11.11	100.00	4.55	
4	4	0	13	17
	2.61	0.00	8.50	11.11
	23.53	0.00	76.47	
	22.22	0.00	9.85	
Total	18	3	132	153
	11.76	1.96	86.27	100.00

Statistics for Table of income by accountable

Statistic	DF	Value	Prob
Chi-Square	6	44.4247	<.0001
Likelihood Ratio Chi-Square	6	21.5688	0.0014
Mantel-Haenszel Chi-Square	1	2.7447	0.0976
Phi Coefficient		0.5388	
Contingency Coefficient		0.4744	
Cramer's V		0.3810	

qualificatio
teambased

Frequency, Percent Row Pct Col Pct	1	2	3	Total
certific	8	2	62	72
	5.23	1.31	40.52	47.06
	11.11	2.78	86.11	
	40.00	22.22	50.00	
degree	6	5	13	24
	3.92	3.27	8.50	15.69
	25.00	20.83	54.17	
	30.00	55.56	10.48	
diploma	4	2	27	33
	2.61	1.31	17.65	21.57
	12.12	6.06	81.82	
	20.00	22.22	21.77	
none	2	0	22	24
	1.31	0.00	14.38	15.69
	8.33	0.00	91.67	
	10.00	0.00	17.74	
Total	20	9	124	153
	13.07	5.88	81.05	100.00

Statistics for Table of qualificatio by teambased

Statistic	DF	Value	Prob
Chi-Square	6	17.6764	0.0071
Likelihood Ratio Chi-Square	6	15.5113	0.0166
Mantel-Haenszel Chi-Square	1	0.0859	0.7694
Phi Coefficient		0.3399	
Contingency Coefficient		0.3218	
Cramer's V		0.2403	

Table of position by teambased

position	teambased			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	6	3	23	32
	3.92	1.96	15.03	20.92
	18.75	9.38	71.88	
	30.00	33.33	18.55	
2	1	3	25	29
	0.65	1.96	16.34	18.95
	3.45	10.34	86.21	
	5.00	33.33	20.16	
3	9	0	66	75
	5.88	0.00	43.14	49.02
	12.00	0.00	88.00	
	45.00	0.00	53.23	
4	4	3	10	17
	2.61	1.96	6.54	11.11
	23.53	17.65	58.82	
	20.00	33.33	8.06	
Total	20	9	124	153
	13.07	5.88	81.05	100.00

Statistics for Table of position by teambased

Statistic	DF	Value	Prob
Chi-Square	6	16.2999	0.0122
Likelihood Ratio Chi-Square	6	19.6213	0.0032
Mantel-Haenszel Chi-Square	1	0.0018	0.9666
Phi Coefficient		0.3264	
Contingency Coefficient		0.3103	
Cramer's V		0.2308	

WARNING: 58% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Sample Size = 153

The FREQ Procedure

Table of ethnicity by lighting

ethnicity	lighting			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
black	125	4	14	143
	81.70	2.61	9.15	93.46
	87.41	2.80	9.79	
	96.15	80.00	77.78	
nonblack	5	1	4	10
	3.27	0.65	2.61	6.54
	50.00	10.00	40.00	
	3.85	20.00	22.22	
Total	130	5	18	153
	84.97	3.27	11.76	100.00

Statistics for Table of ethnicity by lighting

Statistic	DF	Value	Prob
Chi-Square	2	10.2738	0.0059
Likelihood Ratio Chi-Square	2	7.4291	0.0244
Mantel-Haenszel Chi-Square	1	9.8410	0.0017
Phi Coefficient		0.2591	
Contingency Coefficient		0.2508	
Cramer's V		0.2591	

The FREQ Procedure

Table of income by lighting

income		lighting			Total
Frequency,	Percent				
Row Pct					
Col Pct		1	2	3	
1					
75		2	9		86
49.02		1.31	5.88		56.21
87.21		2.33	10.47		
57.69		40.00	50.00		
2					
36		1	2		39
23.53		0.65	1.31		25.49
92.31		2.56	5.13		
27.69		20.00	11.11		
3					
9		1	1		11
5.88		0.65	0.65		7.19
81.82		9.09	9.09		
6.92		20.00	5.56		
4					
10		1	6		17
6.54		0.65	3.92		11.11
58.82		5.88	35.29		
7.69		20.00	33.33		
Total		130	5	18	153
		84.97	3.27	11.76	100.00

Statistics for Table of income by lighting

Statistic	DF	Value	Prob
Chi-Square	6	13.1186	0.0412
Likelihood Ratio Chi-Square	6	10.4534	0.1068
Mantel-Haenszel Chi-Square	1	5.9724	0.0145
Phi Coefficient		0.2928	
Contingency Coefficient		0.2810	
Cramer's V		0.2071	

Table of position by lighting

position	lighting			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	22	4	6	32
	14.38	2.61	3.92	20.92
	68.75	12.50	18.75	
	16.92	80.00	33.33	
2	26	0	3	29
	16.99	0.00	1.96	18.95
	89.66	0.00	10.34	
	20.00	0.00	16.67	
3	74	0	1	75
	48.37	0.00	0.65	49.02
	98.67	0.00	1.33	
	56.92	0.00	5.56	
4	8	1	8	17
	5.23	0.65	5.23	11.11
	47.06	5.88	47.06	
	6.15	20.00	44.44	
Total	130	5	18	153
	84.97	3.27	11.76	100.00

Statistics for Table of position by lighting

Statistic	DF	Value	Prob
Chi-Square	6	44.0111	<.0001
Likelihood Ratio Chi-Square	6	40.6984	<.0001
Mantel-Haenszel Chi-Square	1	0.0068	0.9343
Phi Coefficient		0.5363	
Contingency Coefficient		0.4726	
Cramer's V		0.3792	

Table of position by noise

position	noise			
Frequency,				
Percent ,				
Row Pct ,				
Col Pct	1	2	3	Total
1	30	1	1	32
	19.61	0.65	0.65	20.92
	93.75	3.13	3.13	
	20.98	25.00	16.67	
2	28	1	0	29
	18.30	0.65	0.00	18.95
	96.55	3.45	0.00	
	19.58	25.00	0.00	
3	75	0	0	75
	49.02	0.00	0.00	49.02
	100.00	0.00	0.00	
	52.45	0.00	0.00	
4	10	2	5	17
	6.54	1.31	3.27	11.11
	58.82	11.76	29.41	
	6.99	50.00	83.33	
Total	143	4	6	153
	93.46	2.61	3.92	100.00

Statistics for Table of position by noise

Statistic	DF	Value	Prob
Chi-Square	6	42.3664	<.0001
Likelihood Ratio Chi-Square	6	29.5034	<.0001
Mantel-Haenszel Chi-Square	1	7.1040	0.0077
Phi Coefficient		0.5262	
Contingency Coefficient		0.4657	
Cramer's V		0.3721	

Table of position by temperature					
position	temperature				
Frequency,					
Percent					
Row Pct					
Col Pct	1	2	3	Total	
1	24	4	4	32	
	15.69	2.61	2.61	20.92	
	75.00	12.50	12.50		
	17.78	44.44	44.44		
2	26	3	0	29	
	16.99	1.96	0.00	18.95	
	89.66	10.34	0.00		
	19.26	33.33	0.00		
3	75	0	0	75	
	49.02	0.00	0.00	49.02	
	100.00	0.00	0.00		
	55.56	0.00	0.00		
4	10	2	5	17	
	6.54	1.31	3.27	11.11	
	58.82	11.76	29.41		
	7.41	22.22	55.56		
Total	135	9	9	153	
	88.24	5.88	5.88	100.00	

Statistics for Table of position by temperature

Statistic	DF	Value	Prob
Chi-Square	6	36.7609	<.0001
Likelihood Ratio Chi-Square	6	38.0089	<.0001
Mantel-Haenszel Chi-Square	1	0.0699	0.7914
Phi Coefficient		0.4902	
Contingency Coefficient		0.4401	
Cramer's V		0.3466	

Table of maritalst by machinery				
maritalst	machinery			
Frequency, Percent ROW Pct Col Pct	1	2	3	Total
1	51	5	3	59
	33.33	3.27	1.96	38.56
	86.44	8.47	5.08	
	37.23	71.43	33.33	
2	75	1	4	80
	49.02	0.65	2.61	52.29
	93.75	1.25	5.00	
	54.74	14.29	44.44	
3	3	1	2	6
	1.96	0.65	1.31	3.92
	50.00	16.67	33.33	
	2.19	14.29	22.22	
4	8	0	0	8
	5.23	0.00	0.00	5.23
	100.00	0.00	0.00	
	5.84	0.00	0.00	
Total	137	7	9	153
	89.54	4.58	5.88	100.00

Statistics for Table of maritalst by machinery

Statistic	DF	Value	Prob
Chi-Square	6	15.8711	0.0145
Likelihood Ratio Chi-Square	6	12.4818	0.0520
Mantel-Haenszel Chi-Square	1	0.0001	0.9923
Phi Coefficient		0.3221	
Contingency Coefficient		0.3066	
Cramer's V		0.2277	

Table of position by machinery

position	machinery			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	24	5	3	32
	15.69	3.27	1.96	20.92
	75.00	15.63	9.38	
	17.52	71.43	33.33	
2	28	0	1	29
	18.30	0.00	0.65	18.95
	96.55	0.00	3.45	
	20.44	0.00	11.11	
3	73	1	1	75
	47.71	0.65	0.65	49.02
	97.33	1.33	1.33	
	53.28	14.29	11.11	
4	12	1	4	17
	7.84	0.65	2.61	11.11
	70.59	5.88	23.53	
	8.76	14.29	44.44	
Total	137	7	9	153
	89.54	4.58	5.88	100.00

Statistics for Table of position by machinery

Statistic	DF	Value	Prob
Chi-Square	6	26.3525	0.0002
Likelihood Ratio Chi-Square	6	22.3550	0.0010
Mantel-Haenszel Chi-Square	1	0.1911	0.6620
Phi Coefficient		0.4150	
Contingency Coefficient		0.3833	
Cramer's V		0.2935	

Frequency, Percent Row Pct Col Pct	1	2	3	Total
1	31	0	1	32
	20.26	0.00	0.65	20.92
	96.88	0.00	3.13	
	20.95	0.00	33.33	
2	28	1	0	29
	18.30	0.65	0.00	18.95
	96.55	3.45	0.00	
	18.92	50.00	0.00	
3	75	0	0	75
	49.02	0.00	0.00	49.02
	100.00	0.00	0.00	
	50.68	0.00	0.00	
4	14	1	2	17
	9.15	0.65	1.31	11.11
	82.35	5.88	11.76	
	9.46	50.00	66.67	
Total	148	2	3	153
	96.73	1.31	1.96	100.00

Statistics for Table of position by pmanagement

Statistic	DF	Value	Prob
Chi-Square	6	16.1780	0.0128
Likelihood Ratio Chi-Square	6	13.5123	0.0356
Mantel-Haenszel Chi-Square	1	1.2971	0.2547
Phi Coefficient		0.3252	
Contingency Coefficient		0.3092	
Cramer's V		0.2299	

The FREQ Procedure

Table of maritalst by danequip

maritalst	danequip			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	56	0	3	59
	36.60	0.00	1.96	38.56
	94.92	0.00	5.08	
	40.29	0.00	33.33	
2	73	3	4	80
	47.71	1.96	2.61	52.29
	91.25	3.75	5.00	
	52.52	60.00	44.44	
3	2	2	2	6
	1.31	1.31	1.31	3.92
	33.33	33.33	33.33	
	1.44	40.00	22.22	
4	8	0	0	8
	5.23	0.00	0.00	5.23
	100.00	0.00	0.00	
	5.76	0.00	0.00	
Total	139	5	9	153
	90.85	3.27	5.88	100.00

Statistics for Table of maritalst by danequip

Statistic	DF	Value	Prob
Chi-Square	6	29.5363	<.0001
Likelihood Ratio Chi-Square	6	17.9490	0.0064
Mantel-Haenszel Chi-Square	1	1.4225	0.2330
Phi Coefficient		0.4394	
Contingency Coefficient		0.4023	
Cramer's V		0.3107	

The FREQ Procedure
Table of income by danequip

income	danequip			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	81	0	5	86
	52.94	0.00	3.27	56.21
	94.19	0.00	5.81	
	58.27	0.00	55.56	
2	38	1	0	39
	24.84	0.65	0.00	25.49
	97.44	2.56	0.00	
	27.34	20.00	0.00	
3	6	3	2	11
	3.92	1.96	1.31	7.19
	54.55	27.27	18.18	
	4.32	60.00	22.22	
4	14	1	2	17
	9.15	0.65	1.31	11.11
	82.35	5.88	11.76	
	10.07	20.00	22.22	
Total	139	5	9	153
	90.85	3.27	5.88	100.00

Statistics for Table of income by danequip

Statistic	DF	Value	Prob
Chi-Square	6	30.7672	<.0001
Likelihood Ratio Chi-Square	6	22.8806	0.0008
Mantel-Haenszel Chi-Square	1	4.5551	0.0328
Phi Coefficient		0.4484	
Contingency Coefficient		0.4092	
Cramer's V		0.3171	

The FREQ Procedure

Table of qualificatio by danequip

qualificatio		danequip			Total
Frequency,	Percent	Row Pct	Col Pct		
			1,	2,	3,
certific	65	0	7		72
	42.48	0.00	4.58		47.06
	90.28	0.00	9.72		
	46.76	0.00	77.78		
degree	19	4	1		24
	12.42	2.61	0.65		15.69
	79.17	16.67	4.17		
	13.67	80.00	11.11		
diploma	31	1	1		33
	20.26	0.65	0.65		21.57
	93.94	3.03	3.03		
	22.30	20.00	11.11		
none	24	0	0		24
	15.69	0.00	0.00		15.69
	100.00	0.00	0.00		
	17.27	0.00	0.00		
Total	139	5	9		153
	90.85	3.27	5.88		100.00

Statistics for Table of qualificatio by danequip

Statistic	DF	Value	Prob
Chi-Square	6	20.7392	0.0020
Likelihood Ratio Chi-Square	6	18.5292	0.0050
Mantel-Haenszel Chi-Square	1	3.0818	0.0792
Phi Coefficient		0.3682	
Contingency Coefficient		0.3455	
Cramer's V		0.2603	

The FREQ Procedure

Table of position by danequip

position	danequip			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	26	3	3	32
	16.99	1.96	1.96	20.92
	81.25	9.38	9.38	
	18.71	60.00	33.33	
2	27	1	1	29
	17.65	0.65	0.65	18.95
	93.10	3.45	3.45	
	19.42	20.00	11.11	
3	75	0	0	75
	49.02	0.00	0.00	49.02
	100.00	0.00	0.00	
	53.96	0.00	0.00	
4	11	1	5	17
	7.19	0.65	3.27	11.11
	64.71	5.88	29.41	
	7.91	20.00	55.56	
Total	139	5	9	153
	90.85	3.27	5.88	100.00

Statistics for Table of position by danequip

Statistic	DF	Value	Prob
Chi-Square	6	30.1399	<.0001
Likelihood Ratio Chi-Square	6	27.8740	<.0001
Mantel-Haenszel Chi-Square	1	0.0603	0.8060
Phi Coefficient		0.4438	
Contingency Coefficient		0.4057	
Cramer's V		0.3138	

Table of maritalst by harrassment

maritalst	harrassment			Total
Frequency, Percent Row Pct Col Pct	1	2	3	
1	55	2	2	59
	35.95	1.31	1.31	38.56
	93.22	3.39	3.39	
	38.19	50.00	40.00	
2	77	2	1	80
	50.33	1.31	0.65	52.29
	96.25	2.50	1.25	
	53.47	50.00	20.00	
3	4	0	2	6
	2.61	0.00	1.31	3.92
	66.67	0.00	33.33	
	2.78	0.00	40.00	
4	8	0	0	8
	5.23	0.00	0.00	5.23
	100.00	0.00	0.00	
	5.56	0.00	0.00	
Total	144	4	5	153
	94.12	2.61	3.27	100.00

Statistics for Table of maritalst by harrassment

Statistic	DF	Value	Prob
Chi-Square	6	18.9163	0.0043
Likelihood Ratio Chi-Square	6	8.9816	0.1746
Mantel-Haenszel Chi-Square	1	0.1459	0.7025
Phi Coefficient		0.3516	
Contingency Coefficient		0.3317	
Cramer's V		0.2486	

Table of ethnicity by harrassment

ethnicity	harrassment			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
black	136	4	3	143
	88.89	2.61	1.96	93.46
	95.10	2.80	2.10	
	94.44	100.00	60.00	
nonblack	8	0	2	10
	5.23	0.00	1.31	6.54
	80.00	0.00	20.00	
	5.56	0.00	40.00	
Total	144	4	5	153
	94.12	2.61	3.27	100.00

Statistics for Table of ethnicity by harrassment

Statistic	DF	Value	Prob
Chi-Square	2	9.6722	0.0079
Likelihood Ratio Chi-Square	2	5.3656	0.0684
Mantel-Haenszel Chi-Square	1	6.8126	0.0091
Phi Coefficient		0.2514	
Contingency Coefficient		0.2438	
Cramer's V		0.2514	

Table of maritalst by sympathy

maritalst	sympathy			Total
Frequency, Percent Row Pct Col Pct	1	2	3	
1	55	3	1	59
	35.95	1.96	0.65	38.56
	93.22	5.08	1.69	
	37.93	75.00	25.00	
2	78	1	1	80
	50.98	0.65	0.65	52.29
	97.50	1.25	1.25	
	53.79	25.00	25.00	
3	4	0	2	6
	2.61	0.00	1.31	3.92
	66.67	0.00	33.33	
	2.76	0.00	50.00	
4	8	0	0	8
	5.23	0.00	0.00	5.23
	100.00	0.00	0.00	
	5.52	0.00	0.00	
Total	145	4	4	153
	94.77	2.61	2.61	100.00

Statistics for Table of maritalst by sympathy

Statistic	DF	Value	Prob
Chi-Square	6	25.5403	0.0003
Likelihood Ratio Chi-Square	6	11.0136	0.0880
Mantel-Haenszel Chi-Square	1	0.3276	0.5670
Phi Coefficient		0.4086	
Contingency Coefficient		0.3782	
Cramer's V		0.2889	

The FREQ Procedure

Table of ethnicity by sympathy

ethnicity	sympathy			
	1	2	3	Total
Frequency,				
Percent ,				
Row Pct ,				
Col Pct ,				
black	137	4	2	143
	89.54	2.61	1.31	93.46
	95.80	2.80	1.40	
	94.48	100.00	50.00	
nonblack	8	0	2	10
	5.23	0.00	1.31	6.54
	80.00	0.00	20.00	
	5.52	0.00	50.00	
Total	145	4	4	153
	94.77	2.61	2.61	100.00

Statistics for Table of ethnicity by sympathy

Statistic	DF	Value	Prob
Chi-Square	2	12.8960	0.0016
Likelihood Ratio Chi-Square	2	6.4366	0.0400
Mantel-Haenszel Chi-Square	1	8.8237	0.0030
Phi Coefficient		0.2903	
Contingency Coefficient		0.2788	
Cramer's V		0.2903	

Table of position by complaints

position	complaints			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	28	3	1	32
	18.30	1.96	0.65	20.92
	87.50	9.38	3.13	
	20.44	42.86	11.11	
2	28	0	1	29
	18.30	0.00	0.65	18.95
	96.55	0.00	3.45	
	20.44	0.00	11.11	
3	71	3	1	75
	46.41	1.96	0.65	49.02
	94.67	4.00	1.33	
	51.82	42.86	11.11	
4	10	1	6	17
	6.54	0.65	3.92	11.11
	58.82	5.88	35.29	
	7.30	14.29	66.67	
Total	137	7	9	153
	89.54	4.58	5.88	100.00

Statistics for Table of position by complaints

Statistic	DF	Value	Prob
Chi-Square	6	33.5855	<.0001
Likelihood Ratio Chi-Square	6	22.6273	0.0009
Mantel-Haenszel Chi-Square	1	5.1617	0.0231
Phi Coefficient		0.4685	
Contingency Coefficient		0.4243	
Cramer's V		0.3313	

position	verbalabuse			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	32	0	0	32
	20.92	0.00	0.00	20.92
	100.00	0.00	0.00	
	21.33	0.00	0.00	
2	29	0	0	29
	18.95	0.00	0.00	18.95
	100.00	0.00	0.00	
	19.33	0.00	0.00	
3	74	1	0	75
	48.37	0.65	0.00	49.02
	98.67	1.33	0.00	
	49.33	100.00	0.00	
4	15	0	2	17
	9.80	0.00	1.31	11.11
	88.24	0.00	11.76	
	10.00	0.00	100.00	
Total	150	1	2	153
	98.04	0.65	1.31	100.00

Statistics for Table of position by verbalabuse

Statistic	DF	Value	Prob
Chi-Square	6	17.2336	0.0085
Likelihood Ratio Chi-Square	6	10.4141	0.1083
Mantel-Haenszel Chi-Square	1	5.3072	0.0212
Phi Coefficient		0.3356	
Contingency Coefficient		0.3182	
Cramer's V		0.2373	

Table of ethnicity by racial				
ethnicity	racial			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
black	139	3	1	143
	90.85	1.96	0.65	93.46
	97.20	2.10	0.70	
	93.92	100.00	50.00	
nonblack	9	0	1	10
	5.88	0.00	0.65	6.54
	90.00	0.00	10.00	
	6.08	0.00	50.00	
Total	148	3	2	153
	96.73	1.96	1.31	100.00

Statistics for Table of ethnicity by racial

Statistic	DF	Value	Prob
Chi-Square	2	6.4449	0.0399
Likelihood Ratio Chi-Square	2	3.2751	0.1945
Mantel-Haenszel Chi-Square	1	3.6231	0.0570
Phi Coefficient		0.2052	
Contingency Coefficient		0.2010	
Cramer's V		0.2052	

Table of income by marriedw

income	marriedw			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	49	3	34	86
	32.03	1.96	22.22	56.21
	56.98	3.49	39.53	
	60.49	25.00	56.67	
2	19	2	18	39
	12.42	1.31	11.76	25.49
	48.72	5.13	46.15	
	23.46	16.67	30.00	
3	8	2	1	11
	5.23	1.31	0.65	7.19
	72.73	18.18	9.09	
	9.88	16.67	1.67	
4	5	5	7	17
	3.27	3.27	4.58	11.11
	29.41	29.41	41.18	
	6.17	41.67	11.67	
Total	81	12	60	153
	52.94	7.84	39.22	100.00

Statistics for Table of income by marriedw

Statistic	DF	Value	Prob
Chi-Square	6	20.0587	0.0027
Likelihood Ratio Chi-Square	6	17.4380	0.0078
Mantel-Haenszel Chi-Square	1	0.2902	0.5901
Phi Coefficient		0.3621	
Contingency Coefficient		0.3405	
Cramer's V		0.2560	

The FREQ Procedure

Table of position by divorced

position	divorced			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	20	5	7	32
	13.07	3.27	4.58	20.92
	62.50	15.63	21.88	
	16.81	27.78	43.75	
2	22	5	2	29
	14.38	3.27	1.31	18.95
	75.86	17.24	6.90	
	18.49	27.78	12.50	
3	69	6	0	75
	45.10	3.92	0.00	49.02
	92.00	8.00	0.00	
	57.98	33.33	0.00	
4	8	2	7	17
	5.23	1.31	4.58	11.11
	47.06	11.76	41.18	
	6.72	11.11	43.75	
Total	119	18	16	153
	77.78	11.76	10.46	100.00

Statistics for Table of position by divorced

Statistic	DF	Value	Prob
Chi-Square	6	34.5593	<.0001
Likelihood Ratio Chi-Square	6	35.1771	<.0001
Mantel-Haenszel Chi-Square	1	0.6454	0.4218
Phi Coefficient		0.4753	
Contingency Coefficient		0.4293	
Cramer's V		0.3361	

The FREQ Procedure

Table of experience by divorced

experience		divorced			
Frequency,	Percent				
Row Pct					
Col Pct					
		1	2	3	Total
1	31	13	9	53	
	20.26	8.50	5.88	34.64	
	58.49	24.53	16.98		
	26.05	72.22	56.25		
2	13	4	3	20	
	8.50	2.61	1.96	13.07	
	65.00	20.00	15.00		
	10.92	22.22	18.75		
3	15	1	0	16	
	9.80	0.65	0.00	10.46	
	93.75	6.25	0.00		
	12.61	5.56	0.00		
4	60	0	4	64	
	39.22	0.00	2.61	41.83	
	93.75	0.00	6.25		
	50.42	0.00	25.00		
Total	119	18	16	153	
	77.78	11.76	10.46	100.00	

Statistics for Table of experience by divorced

Statistic	DF	Value	Prob
Chi-Square	6	27.3219	0.0001
Likelihood Ratio Chi-Square	6	34.5361	<.0001
Mantel-Haenszel Chi-Square	1	16.3494	<.0001
Phi Coefficient		0.4226	
Contingency Coefficient		0.3893	
Cramer's V		0.2988	

The FREQ Procedure

Table of position by problems

position	problems			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	29	2	1	32
	18.95	1.31	0.65	20.92
	90.63	6.25	3.13	
	20.42	40.00	16.67	
2	27	1	1	29
	17.65	0.65	0.65	18.95
	93.10	3.45	3.45	
	19.01	20.00	16.67	
3	74	1	0	75
	48.37	0.65	0.00	49.02
	98.67	1.33	0.00	
	52.11	20.00	0.00	
4	12	1	4	17
	7.84	0.65	2.61	11.11
	70.59	5.88	23.53	
	8.45	20.00	66.67	
Total	142	5	6	153
	92.81	3.27	3.92	100.00

Statistics for Table of position by problems

Statistic	DF	Value	Prob
Chi-Square	6	22.9628	0.0008
Likelihood Ratio Chi-Square	6	16.9816	0.0094
Mantel-Haenszel Chi-Square	1	1.7090	0.1911
Phi Coefficient		0.3874	
Contingency Coefficient		0.3612	
Cramer's V		0.2739	

The FREQ Procedure

Table of gender by single

gender	single			Total
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	
female	32	21	10	63
	20.92	13.73	6.54	41.18
	50.79	33.33	15.87	
	30.19	87.50	43.48	
male	74	3	13	90
	48.37	1.96	8.50	58.82
	82.22	3.33	14.44	
	69.81	12.50	56.52	
Total	106	24	23	153
	69.28	15.69	15.03	100.00

Statistics for Table of gender by single

Statistic	DF	Value	Prob
Chi-Square	2	26.5964	<.0001
Likelihood Ratio Chi-Square	2	27.8956	<.0001
Mantel-Haenszel Chi-Square	1	7.2419	0.0071
Phi Coefficient		0.4169	
Contingency Coefficient		0.3848	
Cramer's V		0.4169	

Sample Size = 153

The FREQ Procedure

Table of ethnicity by single

ethnicity	single			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
black	103	22	18	143
	67.32	14.38	11.76	93.46
	72.03	15.38	12.59	
	97.17	91.67	78.26	
nonblack	3	2	5	10
	1.96	1.31	3.27	6.54
	30.00	20.00	50.00	
	2.83	8.33	21.74	
Total	106	24	23	153
	69.28	15.69	15.03	100.00

Statistics for Table of ethnicity by single

Statistic	DF	Value	Prob
Chi-Square	2	11.2123	0.0037
Likelihood Ratio Chi-Square	2	8.7324	0.0127
Mantel-Haenszel Chi-Square	1	10.6765	0.0011
Phi Coefficient		0.2707	
Contingency Coefficient		0.2613	
Cramer's V		0.2707	

Table of income by single

income	single			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	72	7	7	86
	47.06	4.58	4.58	56.21
	83.72	8.14	8.14	
	67.92	29.17	30.43	
2	24	11	4	39
	15.69	7.19	2.61	25.49
	61.54	28.21	10.26	
	22.64	45.83	17.39	
3	4	3	4	11
	2.61	1.96	2.61	7.19
	36.36	27.27	36.36	
	3.77	12.50	17.39	
4	6	3	8	17
	3.92	1.96	5.23	11.11
	35.29	17.65	47.06	
	5.66	12.50	34.78	
Total	106	24	23	153
	69.28	15.69	15.03	100.00

Statistics for Table of income by single

Statistic	DF	Value	Prob
Chi-Square	6	33.7212	<.0001
Likelihood Ratio Chi-Square	6	29.7494	<.0001
Mantel-Haenszel Chi-Square	1	25.6955	<.0001
Phi Coefficient		0.4695	
Contingency Coefficient		0.4250	
Cramer's V		0.3320	

Table of qualificatio by single
 qualificatio
 single

Frequency, Percent Row Pct Col Pct	1,	2,	3,	Total
certific	48 31.37 66.67 45.28	13 8.50 18.06 54.17	11 7.19 15.28 47.83	72 47.06
degree	12 7.84 50.00 11.32	4 2.61 16.67 16.67	8 5.23 33.33 34.78	24 15.69
diploma	22 14.38 66.67 20.75	7 4.58 21.21 29.17	4 2.61 12.12 17.39	33 21.57
none	24 15.69 100.00 22.64	0 0.00 0.00 0.00	0 0.00 0.00 0.00	24 15.69
Total	106 69.28	24 15.69	23 15.03	153 100.00

Statistics for Table of qualificatio by single

Statistic	DF	Value	Prob
Chi-Square	6	18.4836	0.0051
Likelihood Ratio Chi-Square	6	24.1454	0.0005
Mantel-Haenszel Chi-Square	1	5.2519	0.0219
Phi Coefficient		0.3476	
Contingency Coefficient		0.3283	
Cramer's V		0.2458	

The FREQ Procedure

Table of position by single

position	single			Total
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	
1	16	6	10	32
	10.46	3.92	6.54	20.92
	50.00	18.75	31.25	
	15.09	25.00	43.48	
2	18	8	3	29
	11.76	5.23	1.96	18.95
	62.07	27.59	10.34	
	16.98	33.33	13.04	
3	66	8	1	75
	43.14	5.23	0.65	49.02
	88.00	10.67	1.33	
	62.26	33.33	4.35	
4	6	2	9	17
	3.92	1.31	5.88	11.11
	35.29	11.76	52.94	
	5.66	8.33	39.13	
Total	106	24	23	153
	69.28	15.69	15.03	100.00

Statistics for Table of position by single

Statistic	DF	Value	Prob
Chi-Square	6	44.3801	<.0001
Likelihood Ratio Chi-Square	6	43.1439	<.0001
Mantel-Haenszel Chi-Square	1	1.6751	0.1956
Phi Coefficient		0.5386	
Contingency Coefficient		0.4742	
Cramer's V		0.3808	

The FREQ Procedure

Table of experience by single

experience	single			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	32	10	11	53
	20.92	6.54	7.19	34.64
	60.38	18.87	20.75	
	30.19	41.67	47.83	
2	10	6	4	20
	6.54	3.92	2.61	13.07
	50.00	30.00	20.00	
	9.43	25.00	17.39	
3	9	6	1	16
	5.88	3.92	0.65	10.46
	56.25	37.50	6.25	
	8.49	25.00	4.35	
4	55	2	7	64
	35.95	1.31	4.58	41.83
	85.94	3.13	10.94	
	51.89	8.33	30.43	
Total	106	24	23	153
	69.28	15.69	15.03	100.00

Statistics for Table of experience by single

Statistic	DF	Value	Prob
Chi-Square	6	21.8978	0.0013
Likelihood Ratio Chi-Square	6	23.2743	0.0007
Mantel-Haenszel Chi-Square	1	7.5594	0.0060
Phi Coefficient		0.3783	
Contingency Coefficient		0.3538	
Cramer's V		0.2675	

Table of qualificatio by changes
 qualificatio
 changes

Frequency, Percent Row Pct Col Pct	1,	2,	3,	Total
certific	64 41.83 88.89 47.41	2 1.31 2.78 25.00	6 3.92 8.33 60.00	72 47.06
degree	17 11.11 70.83 12.59	6 3.92 25.00 75.00	1 0.65 4.17 10.00	24 15.69
diploma	30 19.61 90.91 22.22	0 0.00 0.00 0.00	3 1.96 9.09 30.00	33 21.57
none	24 15.69 100.00 17.78	0 0.00 0.00 0.00	0 0.00 0.00 0.00	24 15.69
Total	135 88.24	8 5.23	10 6.54	153 100.00

Statistics for Table of qualificatio by changes

Statistic	DF	Value	Prob
Chi-Square	6	25.4406	0.0003
Likelihood Ratio Chi-Square	6	21.5157	0.0015
Mantel-Haenszel Chi-Square	1	1.6458	0.1995
Phi Coefficient		0.4078	
Contingency Coefficient		0.3776	
Cramer's V		0.2883	

The FREQ Procedure

Table of position by changes

position	changes			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	26	3	3	32
	16.99	1.96	1.96	20.92
	81.25	9.38	9.38	
	19.26	37.50	30.00	
2	27	1	1	29
	17.65	0.65	0.65	18.95
	93.10	3.45	3.45	
	20.00	12.50	10.00	
3	73	1	1	75
	47.71	0.65	0.65	49.02
	97.33	1.33	1.33	
	54.07	12.50	10.00	
4	9	3	5	17
	5.88	1.96	3.27	11.11
	52.94	17.65	29.41	
	6.67	37.50	50.00	
Total	135	8	10	153
	88.24	5.23	6.54	100.00

Statistics for Table of position by changes

Statistic	DF	Value	Prob
Chi-Square	6	29.3115	<.0001
Likelihood Ratio Chi-Square	6	23.7271	0.0006
Mantel-Haenszel Chi-Square	1	0.9084	0.3406
Phi Coefficient		0.4377	
Contingency Coefficient		0.4010	
Cramer's V		0.3095	

The FREQ Procedure

Table of position by remuneration

position	remuneration			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	27	4	1	32
	17.65	2.61	0.65	20.92
	84.38	12.50	3.13	
	18.62	100.00	25.00	
2	29	0	0	29
	18.95	0.00	0.00	18.95
	100.00	0.00	0.00	
	20.00	0.00	0.00	
3	73	0	2	75
	47.71	0.00	1.31	49.02
	97.33	0.00	2.67	
	50.34	0.00	50.00	
4	16	0	1	17
	10.46	0.00	0.65	11.11
	94.12	0.00	5.88	
	11.03	0.00	25.00	
Total	145	4	4	153
	94.77	2.61	2.61	100.00

Statistics for Table of position by remuneration

Statistic	DF	Value	Prob
Chi-Square	6	17.1116	0.0089
Likelihood Ratio Chi-Square	6	15.0890	0.0196
Mantel-Haenszel Chi-Square	1	0.9550	0.3284
Phi Coefficient		0.3344	
Contingency Coefficient		0.3172	
Cramer's V		0.2365	

The FREQ Procedure

Table of experience by remuneration

experience	remuneration			
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	Total
1	50	1	2	53
	32.68	0.65	1.31	34.64
	94.34	1.89	3.77	
	34.48	25.00	50.00	
2	16	2	2	20
	10.46	1.31	1.31	13.07
	80.00	10.00	10.00	
	11.03	50.00	50.00	
3	15	1	0	16
	9.80	0.65	0.00	10.46
	93.75	6.25	0.00	
	10.34	25.00	0.00	
4	64	0	0	64
	41.83	0.00	0.00	41.83
	100.00	0.00	0.00	
	44.14	0.00	0.00	
Total	145	4	4	153
	94.77	2.61	2.61	100.00

Statistics for Table of experience by remuneration

Statistic	DF	Value	Prob
Chi-Square	6	13.9470	0.0302
Likelihood Ratio Chi-Square	6	13.9618	0.0301
Mantel-Haenszel Chi-Square	1	3.6520	0.0560
Phi Coefficient		0.3019	
Contingency Coefficient		0.2890	
Cramer's V		0.2135	

Table of position by promotion				
position	promotion			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	3	Total	
1	32	0	32	
	20.92	0.00	20.92	
	100.00	0.00		
	21.33	0.00		
2	29	0	29	
	18.95	0.00	18.95	
	100.00	0.00		
	19.33	0.00		
3	74	1	75	
	48.37	0.65	49.02	
	98.67	1.33		
	49.33	33.33		
4	15	2	17	
	9.80	1.31	11.11	
	88.24	11.76		
	10.00	66.67		
Total	150	3	153	
	98.04	1.96	100.00	

Statistics for Table of position by promotion

Statistic	DF	Value	Prob
Chi-Square	3	9.8736	0.0197
Likelihood Ratio Chi-Square	3	6.5950	0.0860
Mantel-Haenszel Chi-Square	1	4.6205	0.0316
Phi Coefficient		0.2540	
Contingency Coefficient		0.2462	
Cramer's V		0.2540	

The FREQ Procedure

Table of gender by participation

gender	participation			Total
Frequency,				
Percent				
Row Pct				
Col Pct	1,	2,	3,	
female	49	14	0	63
	32.03	9.15	0.00	41.18
	77.78	22.22	0.00	
	36.03	87.50	0.00	
male	87	2	1	90
	56.86	1.31	0.65	58.82
	96.67	2.22	1.11	
	63.97	12.50	100.00	
Total	136	16	1	153
	88.89	10.46	0.65	100.00

Statistics for Table of gender by participation

Statistic	DF	Value	Prob
Chi-Square	2	16.3625	0.0003
Likelihood Ratio Chi-Square	2	17.4809	0.0002
Mantel-Haenszel Chi-Square	1	9.9556	0.0016
Phi Coefficient		0.3270	
Contingency Coefficient		0.3108	
Cramer's V		0.3270	

Table of experience by participation

experience	participation			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	44	8	1	53
	28.76	5.23	0.65	34.64
	83.02	15.09	1.89	
	32.35	50.00	100.00	
2	14	6	0	20
	9.15	3.92	0.00	13.07
	70.00	30.00	0.00	
	10.29	37.50	0.00	
3	14	2	0	16
	9.15	1.31	0.00	10.46
	87.50	12.50	0.00	
	10.29	12.50	0.00	
4	64	0	0	64
	41.83	0.00	0.00	41.83
	100.00	0.00	0.00	
	47.06	0.00	0.00	
Total	136	16	1	153
	88.89	10.46	0.65	100.00

Statistics for Table of experience by participation

Statistic	DF	Value	Prob
Chi-Square	6	18.9377	0.0043
Likelihood Ratio Chi-Square	6	23.2866	0.0007
Mantel-Haenszel Chi-Square	1	10.9801	0.0009
Phi Coefficient		0.3518	
Contingency Coefficient		0.3319	
Cramer's V		0.2488	

Table of maritalst by overload

maritalst	overload			
Frequency,				
Percent				
Row Pct				
Col Pct	1	2	3	Total
1	56	2	1	59
	36.60	1.31	0.65	38.56
	94.92	3.39	1.69	
	38.10	40.00	100.00	
2	79	1	0	80
	51.63	0.65	0.00	52.29
	98.75	1.25	0.00	
	53.74	20.00	0.00	
3	4	2	0	6
	2.61	1.31	0.00	3.92
	66.67	33.33	0.00	
	2.72	40.00	0.00	
4	8	0	0	8
	5.23	0.00	0.00	5.23
	100.00	0.00	0.00	
	5.44	0.00	0.00	
Total	147	5	1	153
	96.08	3.27	0.65	100.00

Statistics for Table of maritalst by overload

Statistic	DF	Value	Prob
Chi-Square	6	20.0711	0.0027
Likelihood Ratio Chi-Square	6	10.1053	0.1203
Mantel-Haenszel Chi-Square	1	0.0188	0.8910
Phi Coefficient		0.3622	
Contingency Coefficient		0.3405	
Cramer's V		0.2561	

WARNING: 67% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Sample Size = 153

The FREQ Procedure

Table of income by overload

income	overload			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	84	1	1	86
	54.90	0.65	0.65	56.21
	97.67	1.16	1.16	
	57.14	20.00	100.00	
2	39	0	0	39
	25.49	0.00	0.00	25.49
	100.00	0.00	0.00	
	26.53	0.00	0.00	
3	9	2	0	11
	5.88	1.31	0.00	7.19
	81.82	18.18	0.00	
	6.12	40.00	0.00	
4	15	2	0	17
	9.80	1.31	0.00	11.11
	88.24	11.76	0.00	
	10.20	40.00	0.00	
Total	147	5	1	153
	96.08	3.27	0.65	100.00

Statistics for Table of income by overload

Statistic	DF	Value	Prob
Chi-Square	6	14.8890	0.0211
Likelihood Ratio Chi-Square	6	11.5157	0.0737
Mantel-Haenszel Chi-Square	1	2.7032	0.1001
Phi Coefficient		0.3120	
Contingency Coefficient		0.2978	
Cramer's V		0.2206	

The FREQ Procedure

Table of position by overload

position	overload			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	28	4	0	32
	18.30	2.61	0.00	20.92
	87.50	12.50	0.00	
	19.05	80.00	0.00	
2	29	0	0	29
	18.95	0.00	0.00	18.95
	100.00	0.00	0.00	
	19.73	0.00	0.00	
3	75	0	0	75
	49.02	0.00	0.00	49.02
	100.00	0.00	0.00	
	51.02	0.00	0.00	
4	15	1	1	17
	9.80	0.65	0.65	11.11
	88.24	5.88	5.88	
	10.20	20.00	100.00	
Total	147	5	1	153
	96.08	3.27	0.65	100.00

Statistics for Table of position by overload

Statistic	DF	Value	Prob
Chi-Square	6	20.6204	0.0021
Likelihood Ratio Chi-Square	6	16.8314	0.0099
Mantel-Haenszel Chi-Square	1	0.2981	0.5851
Phi Coefficient		0.3671	
Contingency Coefficient		0.3446	
Cramer's V		0.2596	

Table of income by muchwork

income	muchwork			
Frequency,				
Percent				
Row Pct				
Col Pct				
	1	2	3	Total
1	83	0	3	86
	54.25	0.00	1.96	56.21
	96.51	0.00	3.49	
	58.87	0.00	37.50	
2	36	1	2	39
	23.53	0.65	1.31	25.49
	92.31	2.56	5.13	
	25.53	25.00	25.00	
3	8	2	1	11
	5.23	1.31	0.65	7.19
	72.73	18.18	9.09	
	5.67	50.00	12.50	
4	14	1	2	17
	9.15	0.65	1.31	11.11
	82.35	5.88	11.76	
	9.93	25.00	25.00	
Total	141	4	8	153
	92.16	2.61	5.23	100.00

Statistics for Table of income by muchwork

Statistic	DF	Value	Prob
Chi-Square	6	16.1465	0.0130
Likelihood Ratio Chi-Square	6	12.0288	0.0613
Mantel-Haenszel Chi-Square	1	5.2760	0.0216
Phi Coefficient		0.3249	
Contingency Coefficient		0.3090	
Cramer's V		0.2297	

The FREQ Procedure

Table of qualificatio by muchwork

qualificatio muchwork					
Frequency,					
Percent					
Row Pct					
Col Pct	1,	2,	3,	Total	
certific	69	0	3	72	
	45.10	0.00	1.96	47.06	
	95.83	0.00	4.17		
	48.94	0.00	37.50		
degree	16	3	5	24	
	10.46	1.96	3.27	15.69	
	66.67	12.50	20.83		
	11.35	75.00	62.50		
diploma	32	1	0	33	
	20.92	0.65	0.00	21.57	
	96.97	3.03	0.00		
	22.70	25.00	0.00		
none	24	0	0	24	
	15.69	0.00	0.00	15.69	
	100.00	0.00	0.00		
	17.02	0.00	0.00		
Total	141	4	8	153	
	92.16	2.61	5.23	100.00	

Statistics for Table of qualificatio by muchwork

Statistic	DF	Value	Prob
Chi-Square	6	27.8562	0.0001
Likelihood Ratio Chi-Square	6	24.3607	0.0004
Mantel-Haenszel Chi-Square	1	0.8664	0.3520
Phi Coefficient		0.4267	
Contingency Coefficient		0.3925	
Cramer's V		0.3017	

