



GORDON INSTITUTE  
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# Stress Related Causes of Presenteeism amongst South African Managers

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Master of Business Administration.

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## ABSTRACT

**Objective:** This study reports the stress related causes of presenteeism amongst South African managers, including the opportunities and challenges of affirmative action. **Methods:** Data were obtained through the use of a questionnaire administered to all managers in two companies situated in the Gauteng region of South Africa. The survey incorporated the COPSOQ stress scales, Stanford Presenteeism Scale (SPS-6), and an affirmative action scale. **Results:** Seventy-three percent (62) of the managers responded. Cronbach's alpha for all scales indicates adequate reliability. There were significant differences in levels of stress between South African managers and those in other countries. High levels of stress are associated with decreased presenteeism. There were significant differences in the means between black and white managers in relation to affirmative action in the South African work environment. **Conclusions:** Black managers appear to be alienated from feeling responsible for productivity, while white managers appear to work under fear-based motivation due to affirmative action measures imposed in the workplace.



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## DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

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Joris Coopmans

November 2007



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## CHAPTER 1 – INTRODUCTION TO THE RESEARCH PROBLEM

The environment in which employees in South Africa and elsewhere in the world currently function demands more of them than did any previous period. The employment relationship has changed, altering the type of work that people do (Barling, 1999 in Rothmann, 2003). Some employees also face diminished choice and control in that they are forced to take on hours and working arrangements that are against their preferences (Turner, Barling, and Zacharatos, 2002 in Rothmann, 2003).

Employees must cope with many demands often with limited resources, and a lack of control. High job demands exhaust an employee's energy; a lack of resources precludes dealing effectively with job demands and fosters mental withdrawal (Rothmann, 2003). Burnout and high job demand lead to stress and hence health problems in the workplace (Rothmann, 2003).

Research conducted on absenteeism in South Africa confirms that it is reaching staggeringly high levels and could be costing the country's economy as much as R12 billion per year (Lilford, 2007). It may however not be the South African employees who are absent due to illness that cause the greatest productivity losses, but the employees who suffer from medical complaints and come to work anyway. Productivity loss due to on-the-job slowdowns from a variety of medical conditions is the flipside of absenteeism: 'presenteeism' (Goetzel, 2004).





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Presenteeism, a phenomenon described by Hemp (2004) as the problem of workers being on the job, but because of illness or other medical conditions, not fully functional, has been found to be a much more costly problem than absenteeism and much more difficult to detect. Researchers argue that presenteeism can cut individual productivity by one third or more (Hemp, 2004).

In Western society, work is the primary factor for stress. Stein (2001) found that in the United States, occupational stress is a widespread phenomenon that contributes to absenteeism, disease, injury and lowered productivity. We do not only deal with work related stress but also juggle our personal relationships, personal finances, information technology, fears and changes, which can all be extremely stressful (Ornelas and Kleiner, 2003).

Additionally, when employees are required to fulfil conflicting role requirements, they are likely to experience job stress, as role conflicts create expectations that may be hard to satisfy (Nasurdin, Ramayah, and Kumaresan, 2005). Furthermore, seeing one's opportunities for career advancement being diminished is perceived as a threat, which in turn, leads to increased job stress (Nasurdin *et al.*, 2005).

This research investigates the level of stress amongst South African managers and its subsequent influence on presenteeism amongst these managers. Given the current challenges facing the South African work environment, this



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research further seeks to determine how South African managers are coping with the opportunities and challenges of affirmative action.

In South Africa the moral imperative views affirmative action as a necessary instrument of change to influence social and economic equality that impacts on the development of blacks (Jinabhai, 2004). Racial affirmative action policies as a form of state sponsored social mobility have however emerged as one of the most controversial and divisive issues in post-apartheid South Africa (Adam, 2000).

Based on a preliminary report (Coopmans, Gaobakwe, Hamm, Netshilaphala, and Van Loggerenberg, 2006) regarding absenteeism and presenteeism in South African managers, it was noted that white and Indian South African managers feel threatened by affirmative action and employment equity. This research seeks to confirm these previous exploratory findings and to determine whether affirmative action contributes to stress in the workplace and subsequent presenteeism as medical conditions manifest themselves within the affected managers.

This research report is set out as follows:

Chapter Two describes the relevant theory base by way of a literature review;

Chapter Three sets out the research hypotheses;

Chapter Four explains the research methodology that was applied;

Chapter Five presents the results of the research undertaken in this project;

Chapter Six is a discussion of the research results;



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Chapter Seven contains the conclusions.



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## CHAPTER 2 – LITERATURE REVIEW

### 2.1 STRESS IN THE WORK PLACE

#### 2.1.1 Definition and stages of stress

Robbins (2001) defines stress as a dynamic condition in which the individual is confronted with an opportunity, constraint, or demand related to what he or she desires and for which the outcome is perceived to be both uncertain and important.

The technical name for these demands is “stressors” and the resulting wear and tear on the body is stress. When our body experiences stress there is a rush of adrenaline, heightened muscle tension, faster heart rate, and raised blood pressure. If our body experiences this stress on a daily basis, the body will soon suffer and the experience becomes distress (Cohen, 2002 in Ornelas and Kleiner, 2003). Managed or controlled stress can contribute positively to personal growth and development. Excessive stress, however, is generally harmful (Urbaniak, 2006).

There are three stages of stress:

1. Alarm
2. Resistance, and
3. Exhaustion



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In stage one, *alarm*, a person's body triggers a complex cascade of biochemical events and the stress hormones adrenaline and cortisol are pumped into the bloodstream (Cohen, 2002 in Ornelas and Kleiner, 2003).

In stage two, *resistance*, the body's heightened physical responses create an increase in activity such that the person either leaves the situation, or stays and attempts to cope by resisting or adapting to the stressful event (Cohen, 2002 in Ornelas and Kleiner, 2003).

In the last stage, *exhaustion*, the person has been reacting to the stressful event for so long that they are overwhelmed, their energy is depleted and the result is exhaustion. This is where the body becomes susceptible to health problems (Cohen, 2002 in Ornelas and Kleiner, 2003).

### *2.1.2 Work conditions that may lead to Stress*

In western society, work is the primary factor for stress. Our jobs are demanding and ever changing. Every industry faces new competition requiring employees to work longer hours for the same amount of pay. As the population increases, we experience a saturated work pool that diminishes our job security. This may explain why so many people remain in jobs that are consistent but not fulfilling. According to the American Medical Association, 95 million Americans take medication for stress-related problems. American businesses lose an estimated \$200-300 billion per year to stress-related productivity loss and other related costs (Ornelas and Kleiner, 2003).



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We not only deal with the work-related stress but we also juggle our personal relationships, personal finances, information technology (e-mail, mobile phones, and pagers), fears (crime, failure, and loneliness), and changes that can all be extremely stressful (Ornelas and Kleiner, 2003). Stress in itself is not necessarily a bad thing. A certain amount is necessary to motivate us, and without some pressures, life would become boring and without purpose (Cohen, 2002 in Ornelas and Kleiner, 2003). How we react to stress depends on whether we see ourselves in control of a situation or overwhelmed by it (Cohen, 2002 in Ornelas and Kleiner, 2003).

Some of the sources of stress - such as downsizing, violence, technology, and diversity - are a part of the current business environment (De Frank and Ivancevich, 1998). The potential negative ramifications of stress for companies and their employees are so substantial that it is crucial that managers act to aid their employees in the development of their coping skills and reduce excessive stress in the workplace itself (De Frank and Ivancevich, 1998).

Work conditions that may lead to stress include:

- *Management Style* - Lack of participation by workers in decision-making processes; poor communication in the organisation, and lack of support from co-workers and supervisors (Ornelas and Kleiner, 2003).
- *Work Roles* - Conflicting or uncertain job expectations; excessive work responsibility.
- *Career Concerns* - Job insecurity; no opportunity for growth, advancement, or promotion (Ornelas and Kleiner, 2003).



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The many challenges in the work environment, characterized by heightened competition, lack of time, lack of space, continuous technological development, conflicting demands from organisational stakeholders (Hall and Savery, 1986, in Nasurdin *et al.*, 2005), increased use of participatory management and computerisation (Murray and Forbes, 1986 in Nasurdin *et al.*, 2005), greater uncertainty, and others have resulted in higher job stress. In the pursuit for organisational excellence, managers need to work under highly stressful circumstances (Nasurdin *et al.*, 2005).

Role conflict has been found to have a positive relationship with job stress (Roberts, Lapidus, and Chonko, 1997 in Nasurdin *et al.*, 2005). When individuals are required to play two or more role requirements that work against one another, they are likely to experience job stress. This is because role conflicts create expectations that may be hard to reconcile. Foot and Venne (1990) discovered a positive relationship between job stress and barriers to career advancement. When employees perceive a lack of career opportunities, they are likely to feel uncertain about their future in the organisation, this in turn, leads to increased job stress (Nasurdin *et al.*, 2005). Additionally, a work environment associated with unpleasant organisational climate, lack of privacy, difficulty in conducting work, and continual distractions can result in higher stress (Miller and Ellis, 1990; Eugene, 1999 in Nasurdin *et al.*, 2005).

Organisational change can also be a stressor (sometimes to an overwhelming extent), but it may also offer creative opportunities for dealing with the stress



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that accompanies it (McDermott, 2002). Workplace stress and personal stress are not mutually exclusive phenomena. Each has direct and indirect effects on the other, and, while ways to address stress in each environment differ, they may also overlap (McDermott, 2002).

Stress at work represents one of the biggest challenges facing management today. Too much stress causes problems with job performance, contributes to high rates of employee turnover and, as a result, can create conflict and disharmony within the workplace (Varca, 1999). Managers need to appreciate and understand workplace stressors. At the same time we must remember that some stresses are imported into the workplace from outside - an individual with personal problems is more likely to respond negatively to work stressors than an individual who has a harmonious personal life (Varca, 1999).

### *2.1.3 Stress Responses and Symptoms*

Stress responses may be either physiological or behavioural. Physiological stress responses include symptoms such as stomach ailments, while behavioural stress responses include a reduction in productivity, absenteeism and higher turnover (Cox, 1978; Robbins, 2001; Roos and Moller, 1988 in Schaap, 2003).

Symptoms of stress include:

- Behavioural stress - impatience, impulsiveness, hyperactivity, short temper, aggressiveness, avoiding difficult situations, and overworking.





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- Cognitive stress (Mental) - frequent memory lapses, constant negative thinking, the inability to make decisions, difficulty getting things done, distorted ideas, very rigid attitudes and difficulty concentrating.
  - Somatic stress (Health) - high blood pressure, higher than usual susceptibility to colds and flu, migraines, irritable bowel syndrome, ulcers, stomach disorders, heart attacks, angina, strokes, asthma and skin rashes (Cohen, 2002 in Ornelas and Kleiner, 2003).

#### *2.1.4 Stress and employee health*

Stress in the workplace is a contributing factor to disease, injury and violence as well as lowered worker productivity. It adds to worker absenteeism and sick leave. Stress as an aversive factor on the individual can originate internally (such as feeling incapable of completing a job) or externally (when an individual has too many things to do and not enough time to complete the tasks required by an employer) (Stein, 2001).

Stress is a total response of the body to cope with the everyday demands of living and may be mild, moderate or severe. The ability to tolerate high amounts of stress varies with the individual and their ability to use copers to manage stress (Stein, 2001; Kobasa, 1979). In some individuals mild stress can be motivating or positive. As such, it is referred to as eustress, and can contribute positively to personal growth and development (Stein, 2001; Urbaniak, 2006).



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We can therefore see that managed or controlled stress can contribute positively to personal growth and development. Excessive stress, however, is generally harmful. Among employees, stress of this kind manifests itself in increased absenteeism, job turnover, mistakes on the job, lower productivity, and low levels of motivation (Urbaniak, 2006). If extensive pressure is put on the worker the result can be severe stress and burnout (Stein, 2001).

Estimates indicate that over one-third of all employees experience reduced work efficacy due to stress. A person is likely to experience stress when an imbalance exists between perceived demands and their capacity to meet those demands (Urbaniak, 2006).

It has been shown by Kobasa (1979), that illness symptoms track total stress with an approximately six-month lag. In other words, when total stress goes up or down in a six-month period, illness will go up or down correspondingly in the following six-month period.

It is to the benefit of the employer and the employee that the company is profitable and it is a benefit to both that the worker does not experience severe stress and resulting burnout (Stein, 2001).



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## 2.2 PRESENTEEISM

### 2.2.1 Definition of Presenteeism

Presenteeism may be defined as: The problem that occurs when workers are physically present on the job, but function at less than full productivity because of illness or other health conditions (Turpin, Ozminkowski, Sharda, Collins, Berger and others, 2004). The Stanford Presenteeism Scale (SPS) measures a worker's ability to concentrate and accomplish work despite health problems. It must therefore be noted that heightened job performance is defined as increased presenteeism, while diminished presenteeism occurs when employees work less productively or at a poorer quality than usual due to a health or medical problem (Koopman, Pelletier, Murray, Sharda, Berger, Terpin and others, 2002).

### 2.2.2 Health and Productivity

It may not be employees who are absent due to illness that cause the greatest productivity losses, but employees who suffer from medical complaints and come to work anyway. Productivity loss due to on-the-job slowdowns from a variety of medical conditions such as hypertension and arthritis is the flipside of absenteeism: 'presenteeism' (Goetzel, 2004).

In the United States, Medstat estimates that companies on the job productivity losses from presenteeism may be as high as 60% of the total cost of worker illness, significantly exceeding the costs of absenteeism and medical and disability benefits. Including conditions such as allergies and headaches, on-



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the-job productivity losses could account for more than 80% of an employers' total illness costs (Goetzal, 2004).

One clear link between health and productivity is job attendance. However, equating time at work with productivity bears careful scrutiny (Shamansky, 2002). The literature indicates that this is indeed a flawed assumption (Goetzal, Ozminkowski, Hawkins, Wang, and Lynch, 2004). Depression, poor physical stamina, fatigue, substance abuse problems, and/or improperly managed diseases such as arthritis and migraine headaches can affect personal output. The real productivity thieves are things like high stress, colds and flu, allergy and asthma, and musculoskeletal pain, not because they are unnecessarily severe, but because they strike so many people and either keep them from work or decrease their work performance while on the job (Shamansky, 2002).

The burden of poor health affects both direct and indirect employer costs, and the lost opportunity cost of employees working below peak capacity (presenteeism) produces negative effects on job performance, creativity, innovation, and business success (Shamansky, 2002).

Lowe (2004) equated presenteeism to two different employee behaviours. First, presenteeism can describe employees going to work sick or tired. These employees remain on the job but are not as productive as usual due to stress, depression, illness, headaches, or other disorders. Second, presenteeism can occur when employees put in excessive work hours as an expression of commitment or a way of coping with job insecurity. Even beyond the fact of



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physical presence at work, these employees are not functioning at their peak capacity. This puts them, their co-workers, patients, and families at risk not only for contagion of their illness, but for effects of their reduced attention spans and increased potential for errors (Lowe, 2004 in Middaugh, 2006). Employee conditions may create the need to repeat a task to correct an error, or cause them to work more slowly to prevent errors (Burton, Conti, Chen, Schultz, and Edington, 1999 in Middaugh, 2006).

The cost of absenteeism is easy to calculate: 100% of a worker's productivity is lost each day that the worker is not on the job. However, the cost of presenteeism and its accompanying loss of productivity is not easily measured (Middaugh, 2006). A decrease in presenteeism can hurt productivity in a similar way to an increase in absenteeism (Koopman *et al.*, 2002). A major study conducted by Cornell University reported that presenteeism could account for as little as 18% to as much as 61% of the total cost of worker illness (Goetzel *et al.*, 2004 in Middaugh, 2006).

### *2.2.3 Presenteeism and the work Environment*

There is strong evidence that an unfavourable psychosocial work environment is an independent risk factor for depressive and anxiety symptoms. Depression and anxiety symptoms are more consistently associated with presenteeism than with absenteeism. Jobs with high demands (such as workload, time pressure and role conflict) and those low in control (with low autonomy and



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authority) increase stress and, hence, risk for psychiatric ill health (Sanderson and Andrews, 2006).

Work is a social contract where employees have expectations of benefits arising from work effort. When this contract is not reciprocated, referred to as an effort-reward imbalance, the work environment can act as a stressor. Effort includes responsibility, workload and time pressures, whereas reward includes money, esteem and career opportunities such as promotion and job security (Sanderson and Andrews, 2006).

Many of the medical problems that result in presenteeism are, by their nature, relatively benign. Presenteeism focuses on such chronic or episodic ailments as seasonal allergies, asthma, migraines and other kinds of headaches, back pain, arthritis, gastrointestinal disorders and depression (Hemp, 2004). Canadian researchers have found that certain kinds of workplace stress are associated with a higher frequency of depressive symptoms in employees (Bilsker, 2006).

The illnesses people take with them to work, even though they incur far lower costs, usually account for a greater loss in productivity because they are so prevalent. Those indirect costs have long been largely invisible to employers (Hemp, 2004).

The American Productivity Audit calculated the total cost of presenteeism in the United States to be more than \$150 billion per year. Most other American



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studies have shown that presenteeism costs employers two to three times more than direct medical care, which is paid for by companies in the form of insurance premiums or employee claims (Hemp, 2004).

Presenteeism represents a problem for employers: when people don't feel good, they simply don't do their best work (Hemp, 2004). Disability and absenteeism expenses are the compensation paid when employees are away from work. Presenteeism expenses, estimates based on employees' salaries, are the dollar costs to illness-related reductions in productivity (Hemp, 2004).

There is increasing concern about the interaction between mental health problems and the workplace - the effect of mental health disorders on functioning in the workplace and, conversely, the effect of workplace factors on the occurrence of mental disorders. Common mental disorders such as depression and anxiety are among the most frequent causes of occupational disability. Substantial costs are associated with depressive disorders in the form of reduced worker productivity, absenteeism and disability (Bilsker, 2006). Sanderson and Andrews (2006), show that certain kinds of workplace environments increase the risk of onset of common mental disorders.

Three types of risky environments include:

1. Jobs with high demands, whether because of long hours or intense time pressures, but with little control permitted to employees regarding the nature of timing of tasks.



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2. Environments in which employees do not perceive the job rewards to be equal to the effort required and thus find the work situation demoralizing.
  3. Environments in which the workplace is experienced as fundamentally unjust, whether in terms of unfair decision making or disrespectful treatment by managers.

Most individuals being treated for common mental disorders continue to attend work, although often with a lower level of effectiveness (Bilsker, 2006).

More than 62% of employees in the United States are concerned with simply 'getting by' and accomplishing basic tasks, while 26% consider being present at work the most important objective. This phenomenon of 'presenteeism' can be triggered by high stress levels and can have a significant impact upon productivity and a company's bottom line (Compsych, 2003).

Cited causes of stress were:

1. 41% workload
2. 31% people issues
3. 28% juggling work and personal life





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## 2.3 AFFIRMATIVE ACTION

### 2.3.1 *Definition of Affirmative Action*

The definition of affirmative action is: A planned and positive process and strategy aimed at transforming socio-economic environments that have excluded individuals from disadvantaged groups, in order for such disadvantaged individuals to gain access to opportunities, including developmental opportunities, based on their suitability (Jinabhai, 2004).

### 2.3.2 *Brief History in South Africa*

In South Africa the moral imperative views affirmative action as a necessary instrument of change to influence social and economic equality that impacts on the development of blacks (Jinabhai, 2004). South Africa's legislation addresses discrimination in private and public sectors against women and previously disadvantaged people (including African, Coloured and Indian groups), who constitute the majority of the population (Jain, Sloan, Horwitz, Taggar, and others, 2003).

Anxious to show economic results and loath to let employment restructuring take place on its own, the ANC has taken a proactive approach, which has predominately taken the form of affirmative action programs. By taking this route, the ANC views affirmative action as "a special measure to be taken to ensure that people from disadvantaged groups inside and outside the public service will be identified and appointed...with the aim of achieving



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representativeness” (African National Congress, 1995 in Scott, Amos, and DeLouche Scott, 1998).

### *2.3.3 The Stigma of Affirmative Action*

Affirmative action typically involves introducing measures to raise the participation of members of an economically disadvantaged group in the areas of education, employment and business, where they had been historically excluded or underrepresented. Because affirmative action measures entail bestowing preferential treatment on members of a designated group, they invariably will generate controversy; in particular preferential treatment on the basis of ethnicity and gender has generated intense, passionate debate (Guan, 2005).

Affirmative action is said to stigmatize minorities, particularly blacks by implying that they simply cannot compete on an equal basis with dominant groups, especially Asians and Whites (in contrast, Blacks are the majority population in South Africa). Furthermore, the shadow cast by preferential treatment is feared to be pervasive, hovering over blacks who have been accorded preferential treatment and over those who have attained positions without the aid of affirmative action (Guan, 2005).

The beneficiaries of reverse discrimination (i.e. affirmative action) may come to question their self-worth, to wonder if they made it on their own merit or whether their sex or race explains their success (Adam, 2000). Adam (2000)



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believes that they may perceive themselves as having obtained a handout based on the colour of their skin and subsequently feel guilty about their “tainted” achievements. Thus, blacks are confronted with an expanded realm of debilitating doubt, so that the doubt itself becomes an unrecognised preoccupation- undermining their ability to perform (Adam, 2000).

An International Labour Organization study (1996) notes that income distribution in South Africa “remains among the most unequal in the world,” and a main indicator of poverty is race. Non-racialism as the core ideology of the new state is contradicted by the differential treatment of the past victims of racialism. Racial affirmative action policies as a form of state sponsored social mobility have emerged as one of the most controversial and divisive issues in post-apartheid South Africa.

Singled out for preferential treatment in job allocation and government contracts are members of “formerly disadvantaged groups”. In practice this is interpreted as bestowing advantage on Blacks as the previously most discriminated against and now politically dominant group of the apartheid victims. Hence, new rivalries are triggered among the middle groups, Indians, Asians and Coloureds, some of whom again feel excluded from equal opportunities (Adam, 2000). However, affirmative action is most resented by the beneficiaries of previously legislated advantage. They now consider it “reverse racial discrimination”. This contradicts the ANC’s promise of colour-blind non-racialism (Adam, 2000).



Adam (2000) concludes that:

1. Not every person is suitable or will be capable of doing any job, and people with biased opinions could select any person into any higher position thus proving the negative side of affirmative action.
2. Management must not appoint people they know cannot perform adequately in a specific position.
3. Affirmative action can be a motivator if management is serious about affirmative action.
4. Affirmative action may be disillusioning if a person is given a position without responsibilities for the sake of increasing the numbers of Blacks in senior posts.
5. The effect of affirmative action on its beneficiaries depends on how your colleagues treat them once they have been appointed.
6. Affirmative action appointees placed in positions as tokens was seen as another factor contributing to lowered self-esteem among the group.

#### *2.3.4 Studies on Affirmative Action in South Africa*

Scott *et al.* (1998) gathered data (through the use of a questionnaire) probing the feelings elicited by affirmative action programs in the United States and South Africa. One section gathered demographic information and the other focused on respondent perception of the workplace in general, followed by specific questions as to the perceived role that affirmative action would play in their careers.



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Both U.S. and South African samples consisted of university students with the majority being business majors pursuing courses in management. Findings of the study include the following:

1. The most optimistic racial group is the blacks in both countries.
2. Groups with the greatest pessimism are South African coloureds and whites.
3. In both countries women are more optimistic than males.
4. Results show that young people in South Africa have not been as well instilled with the relationship between hard work and subsequent rewards from that hard work as their U.S. counterparts.
5. Significantly, the only South African ethnic group that felt that minority employees (Whites, Indians, and Coloureds) would be treated fairly was South African Blacks.
6. South African whites view affirmative action policies as the number one factor that may impede their success on the job. No other group from either country even came close to feelings expressed by South African whites on this issue. South African males felt more strongly than females on this topic, while females thought competition from peers would be a major hindrance.
7. Lastly, it was expected that the respondents would feel that, in some way, affirmative action programs would play a major part in their careers. This was not the case. Rather, while many participants felt that affirmative action programs might assist them with respect to the number of jobs available to them; most believed affirmative action



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became unimportant among those factors that would cause them to be successful in their chosen careers (Scott *et al.*, 1998).

A study by Jinabhai (2004) to ascertain whether affirmative action and the call for its legislation has an impact on top management with regard to the training and development of black managers in South Africa resulted in the following findings:

1. Progress in the advancement of blacks into highly skilled and management positions has been slow in South African companies. He cautions that the economy will continue to be under-managed if the rate of progress is not accelerated (Jinabhai, 2004).
2. The slow appointment of blacks to senior and middle management positions is attributed to a severe shortage of qualified people. According to Sibiyi (1996), “a lot of organizations are still poaching, particularly at the senior level where the pool of resources is very limited. This helps change the profile of an organization, but real affirmative action must take place from within through the internal development of staff”.
3. The national deputy president of the Black Management Forum, Theodora Ngidi, indicated that “companies are still looking for black professionals of the highest quality, when they should be looking to train and develop people”. Affirmative action cannot merely be an intervention to put blacks into managerial positions, but must be an affirming concretized action to train and develop them internally for managerial roles (Jinabhai, 2004).



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A study by Adam (2000) on students in the University of Cape Town's Associate in Management (AIM) program designed to compensate individuals from educationally deprived backgrounds by making up for the lack of skills that their peers from more privileged homes and schools had already acquired tested black perceptions of affirmative action by these potential beneficiaries.

Adam's (2000) study had the following findings:

1. Once competition on an equal playing level is achieved, blacks are quite confident that they do not need to be pampered with special treatment.
2. Contrary to what was expected, no internalized inferiority was evident in any of the respondents' answers and there was no perception of an undeserved unfair advantage.
3. Affirmative action according to the group of AIM respondents was perceived on the whole as a deserved opportunity to prove oneself.
4. There is a growing fear, especially among Coloured professionals that business is directing affirmative action and "fast-track promotion" programs solely at Africans - at the expense of Coloured and Indian employees. Indian and Coloured appointees, although technically part of the disadvantaged target groups, are seen as second choices in the absence of suitable "real" black candidates.
5. It was argued that hiring depended heavily on the region in which the company was based. Coloureds and Indians have always been preferred to blacks in certain regions and this preference has been



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carried over to the implementation of affirmative action since they are now classified as Blacks. Blacks are in the majority and have been the most disadvantaged, whereas Coloureds and Indians have been excluded but have had an advantage in relation to blacks (Adam, 2000).

### *2.3.5 Education and Training*

It is widely accepted that the supply of black managers for South African organizations will not be adequate to maintain a growing economy. The situation is exacerbated by a shortage of competently skilled black managers and compounded further by a lack of suitably qualified and trained personnel from skilled entry point to top executive level. There is a need to train and develop, some 10,000 black managers per year. A further concern is the lucrative financial incentives offered by the private sector for competent and skilled black managers, precipitated by the acknowledged shortage which drives up the salaries and benefits for suitable black candidates (Jinabhai, 2004; Bryson, 1995 in Scott *et al.*, 1998).

People development demands a commitment of time and money to create increasing opportunities for people to become competent. De Wet (1993 in Jinabhai, 2004) states that tokenism should be avoided and merit-based affirmative action could be successful if the organizational climate and business philosophy promotes people development with equal opportunities.





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Findings by Jinabhai (2004) pertaining to organizations that were top industrials listed on the Johannesburg Stock Exchange (JSE) and whose workforce was in excess of 500 employees found that:

1. Affirmative action appointments should be made on the criteria of potential and competence, with the individual displaying the requisite knowledge, skills and abilities. In the long term, blacks would be competing with other blacks.
2. Political pressure seems to influence affirmative action with respect to black management development, although corporate organizations are opposed to the interventionist role of state legislation in this regard.
3. The majority of respondents (65.6 percent) being both Black and White believed that affirmative action should not be legislated. Some of the qualitative responses cited tokenism, merit-based appointment and reverse discrimination as reasons (Jinabhai, 2004).
4. A written black management development policy resulted in significantly more commitment to the development of black managers in the corporate sector.

### *2.3.6 Productivity and Affirmative Action*

A survey of executives of South Africa's top 100 companies by Sapa (1997) in (Scott *et al.*, 1998) reveals that 62 % feel that affirmative action programs have a negative effect on productivity. High levels of worker productivity equate to mastering production efficiency, which leads to higher levels of competitiveness on world markets. Whether affirmative action programs have



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had any impact on worker productivity is arguable. But, South Africa rates low in terms of its ability to compete effectively (Scott *et al.*, 1998).

### *2.3.7 Affirmative Action in Malaysia*

Malaysia was previously the only country where affirmative action targeted a majority of the population (Adam, 2000). The majority ethnic group that has the power to legislate the affirmative action policies and receive the benefits from the policies in Malaysia are the Malays. Conversely, it is the Chinese and Indian ethnic minorities, the most advanced economic groups, who have felt most victimized by the affirmative action policies.

The ethnic preferential policy has generated intense controversy in Malaysian society, with the majority of Malays, Chinese, and Indians, taking diametrically opposing views (Guan, 2005). While the ethnic preferential policy has helped to narrow ethnic inequality, it, however, was inadequate as an instrument to narrow growing intra-ethnic inequality. Thus the ethnic-based preferential policy disproportionately benefited the better off members of the Malay community, resulting in growing friction within the community (Guan, 2005).

Currently, there is a growing concern among certain Malay individuals that prolonging the ethnic preferential policy in their country may have deleterious effects on the Malay individual and collective competitiveness. The ethnic preferential policy might weaken the economic competitiveness of the country and hinder the national goal to upgrade to a knowledge-based economy. The



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existing ethnic preferential policy was one of the push factors that resulted in the brain drain on the non-Malay Malaysian skilled workers to live and work abroad (Guan, 2005).

One factor that would still discourage Malaysians abroad from returning home would be the ethnic preferential policy. Expatriate Malaysian Chinese or Indians would hesitate to return, as they would assume that they and their children would not have equality of employment and educational opportunities (Guan, 2005).

This situation appears to be very similar to the current conditions in South Africa, with the better off members of the black community benefiting to the detriment of others. Skilled whites have left the country in droves and will be reluctant to return should either South Africa's economy or its competitiveness on the world market weaken with no end in sight for affirmative action policies.



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## CHAPTER 3 – RESEARCH HYPOTHESES

Based on the findings in the literature review and previous exploratory work completed on this subject (Coopmans *et al.*, 2006), the following hypotheses seek to determine the stress related causes of presenteeism amongst South African managers. Given the current challenges facing the South African work environment, the particular opportunities and challenges of Affirmative Action are also considered.

### *Hypothesis # 1:*

The null hypothesis states that the level of stress of South African managers is not significantly different from that of managers in other countries as measured by the COPSOQ stress scale.

The alternative hypothesis states that the level of stress of South African managers is significantly different to that of managers in other countries as measured by the COPSOQ stress scale.

### *Hypothesis # 2:*

The null hypothesis states that high levels of stress amongst South African managers is not associated with decreased presenteeism.

The alternative hypothesis states that high levels of stress amongst South African managers is associated with decreased presenteeism.



*Hypothesis # 3:*

The null hypothesis states that there is no relationship between stress levels and reporting negative impacts of affirmative action.

The alternative hypothesis states that the perception of affirmative action as having negative impacts is associated with higher levels of stress.



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## CHAPTER 4 – RESEARCH METHODOLOGY

Welman and Kruger (2001) define research as involving the application of various methods and techniques in order to create scientifically obtained knowledge by using objective methods and procedures.

An experimental design is one in which a single independent variable is manipulated in order to observe its effect on a single dependent variable (Zikmund, 2003).

A non-experimental research design is a systematic, empirical enquiry in which the scientist does not have direct control over the independent variables as their manifestations have already occurred or because they are inherently not manipulable (Kerlinger, 1986).

This research made use of a non-experimental research design. The research was conducted to describe the stress related causes of presenteeism amongst South African managers and the specific influence of Affirmative Action on these managers.

This chapter presents the methods and techniques used to obtain the answers to the research hypotheses.



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#### 4.1 *Population of Relevance*

The population of relevance consisted of all managers representing an engineering company and an IT company located in Gauteng. The companies were chosen out of convenience, as they are housed in the same building and access to managers was available. For the purposes of the research, the term 'Manager' was defined as any person within the organisation who is employed in a fee earning capacity, and given the role of Supervisor, Manager, Senior Manager or Director.

#### 4.2 *Sampling Method and Size*

The sample consisted of all 85 managers in the two companies described above. Managers surveyed included only those present in the Gauteng offices in South Africa. The human resource managers were used to identify the employees that fell into the category of managers defined above and assisted in distributing the questionnaires.

#### 4.3 *Data Collection Process*

The human resources managers administered the survey electronically (via e-mail) to the target population. A covering letter explaining the purpose of the research was sent together with the questionnaire (see Appendix A). Employees completed the survey in the period August to September, 2007.

The data was collected with the informed consent of the respondents. A statement of confidentiality was included in the questionnaire, along with third



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party details to whom the completed questionnaires were to be sent. Respondents were informed that no survey data would be sent directly to the corporation and that confidentiality of the data would be preserved by ensuring anonymity.

#### 4.4 *Measuring Instruments and Reliability*

A comprehensive questionnaire consisting of 27 questions was used for the research. Five items assessed demographic characteristics of the survey respondents: age, gender, ethnicity, education level, and years worked in the company.

The rest of the questionnaire was split into three separate sections, namely:

- (a) Evidence of stressors in the workplace
- (b) Evidence of affirmative action in the workplace, and
- (c) The impact of stress on work performance (Presenteeism)

Respondents were asked to respond to the questionnaire relative to their last 4 week period of work.

Reliability is defined as consistency or stability, i.e. whether the measurement can be repeated and confirmed by further competent measurements (Rosnow and Rosenthal, 1999). Reliability of the measuring instruments was confirmed using Cronbach's alpha, by computing coefficients for internal consistency.





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(a) The Copenhagen Psychological Questionnaire (COPSOQ) was used to determine the levels of behavioural, somatic and cognitive stress among the respondents. The median questionnaire version of the COPSOQ scale was selected to determine the levels of stress among respondents. The COPSOQ median questionnaire has been proven to be a valid and reliable tool for measuring psychological factors at work (Kristensen, Hannerz, Høgh, and Borg, 2005). Reliability coefficients for the three COPSOQ stress scales are given in Chapter 5. Permission to use the COPSOQ scales for this specific research was received from Dr. Tage Kristensen.

(b) The negative perception of affirmative action amongst managers in the South African work environment was determined by utilising nine questions developed in conjunction with the literature review. The reliability of the scale was tested upon data analysis.

(c) The Stanford Presenteeism Scale (SPS-6, 2001 version) jointly owned by Merck & Co., Inc., and Stanford University School of Medicine was used to determine the level of presenteeism amongst South African managers. The Stanford Presenteeism Scale (SPS) measures a worker's ability to concentrate and accomplish work despite health problems (Koopman *et al.*, 2002). Although most authors use the term 'presenteeism' only in a negative context of reduced performance, it must again be noted that Koopman *et al.*, (2002) prefer a more flexible term when using the SPS scale. Thus heightened job performance is increased presenteeism, while diminished presenteeism occurs when employees work less productively or at a poorer quality than usual due to



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a health or medical problem (Koopman *et al.*, 2002). The Stanford Presenteeism Scale and in particular the SPS-6 has a proven high degree of reliability (Cronbach's alpha of 0.80) and validity for measuring health and productivity (Koopman *et al.*, 2002) and (Turpin *et al.*, 2004). Permission to use the SPS-6 version of the Stanford Presenteeism Scale was received from Merck & Co., Inc., (Dr. Murray) and Stanford University School of Medicine (Dr. Koopman and Dr. Pelletier).

#### 4.5 *Data Analysis Approach*

The individual questionnaires were consolidated into a single spreadsheet for statistical analysis (see Appendix B). The spreadsheet was formatted to be compatible with NCSS (Number Cruncher Statistical System, 2005 version) a statistical computer package. Descriptive statistics was used to summarize information about the sample. The research hypotheses were tested using the Analysis of Variance (ANOVA) and T-test two-tailed tests, with the appropriate result determined for sub-samples less than 30.

For the purposes of this research, a 95 percent confidence level was used.

#### 4.6 *Research Limitations*

The research conducted in this study had certain limitations, including the following:

1. It was focused on an engineering company that deals mainly with mining projects in Africa, and an IT services company. Both companies



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are located in the Gauteng province of South Africa. The results may therefore not be generalisable to managers outside this industry and region.

2. It ignored personality characteristics, which have been proven to play an important role in people's experience of stress (Schaap, 2003).
3. It consisted of a relatively small sample.
4. The companies chosen may not be representative of the current South African managerial demographics which are continually changing.
5. It used a 4 week period to assess respondents. This was done to maximize accurate recall, however may not be applicable to the questions pertaining to affirmative action.



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## CHAPTER 5 – RESULTS

### 5.1 Description of the Sample

A total of 85 managers within the two companies targeted were e-mailed a research questionnaire. 62 responses were received, yielding a response rate of 73%. Three respondents did not believe that affirmative action measures were applied at their place of work and thus were excluded from the statistical analysis. 40.7% of respondents fell in the 31 to 40 age group, 54% of all respondents being female. Table 1 below summarizes the demographic characteristics of respondents.

*Table 1: Demographic Characteristics of Respondents*

| Characteristic   | Category      | Frequency | Percentage |
|------------------|---------------|-----------|------------|
| Gender           | Men           | 27        | 45.8       |
|                  | Women         | 32        | 54.2       |
| Age              | 20 to 30      | 22        | 37.3       |
|                  | 31 to 40      | 24        | 40.7       |
|                  | 41 to 50      | 8         | 13.6       |
|                  | 50+           | 5         | 8.4        |
| Ethnic Group     | African       | 16        | 27.1       |
|                  | Coloured      | 3         | 5.1        |
|                  | Indian        | 5         | 8.5        |
|                  | White         | 35        | 59.3       |
| Education Level  | < Matric      | 6         | 10.2       |
|                  | Matric        | 6         | 10.2       |
|                  | Diploma       | 14        | 23.7       |
|                  | Degree        | 8         | 13.5       |
|                  | Post Graduate | 25        | 42.4       |
| Years in Company | < 1           | 11        | 18.6       |
|                  | 1 to 3        | 20        | 33.9       |
|                  | 3 to 5        | 9         | 15.3       |
|                  | 5 to 10       | 12        | 20.3       |
|                  | 10+           | 7         | 11.9       |



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## 5.2 *Data Analysis & Interpretation*

In order to gain a better understanding of the data gathered, a broad descriptive analysis relating to demographics was performed. A minimum, maximum, mean, median & standard deviation was calculated for each of the demographic items and the 27 individual questions (see Appendix B). The data were then analysed in sections relating to stress, presenteeism, and affirmative action.

Potentially significant questions were identified based on the following criteria:

- The mean value for a specific demographic characteristic was higher or lower than the mean value for all respondents, relating to the relevant scales or questions.
- The mean value between sub groups was very different from one another.

The identified questions were subjected to hypothesis testing. This analysis methodology brought focus to areas of difference that would best answer the hypotheses as set out in Chapter 3. The complete analysis is presented together with the individual responses to the questionnaire in Appendix B.

### 5.2.1 *Stress Analysis*

For the COPSOQ questions, Behavioural, Somatic, & Cognitive Stress were calculated. Behavioural Stress being questions 1 to 4, Somatic Stress - questions 5 to 8, and Cognitive Stress - questions 9 to 12.

The scales of the COPSOQ are formed by adding the points of the individual questions of the scale and by giving equal weight to each question. All questions have five possible response options. Each scale functions on its own. Scale weights are: 100, 75, 50, 25 and 0. The scale value is calculated as the simple average of the number of questions in each scale and a high value on the stress scale indicates a high level of stress (Kristensen *et al.*, 2005).

The average scores and standard deviations of the COPSOQ scales for stress were determined by Kristensen *et al.*, (2005) to be as laid out in Table 2 below, with calculated stress values higher than the average indicating a higher than average stress level.

*Table 2: Average Scores and Standard Deviations for COPSOQ Stress Scales*

| Mean +/- SD        | Kristensen et al., 2005 | South African Managers |
|--------------------|-------------------------|------------------------|
| Behavioural Stress | 17.1 +/- 17.4           | 28.3 +/- 18.3          |
| Somatic Stress     | 19.1 +/- 16.1           | 26.0 +/- 17.9          |
| Cognitive Stress   | 20.0 +/- 18.5           | 31.6 +/- 21.5          |

As can be seen in Table 2, the stress levels of South African managers on all three scales are higher than the average for the COPSOQ scales. Table 3 gives the mean total COPSOQ stress scores by demographic characteristics. From Table 3, female managers have higher mean levels of stress than male managers. The youngest age group (20 to 30) has the highest level of stress on both the somatic and cognitive stress scales, with the second highest mean

behavioural stress score. Statistical analysis on the COPSOQ stress scales is given in Table 4.

*Table 3: Mean Total COPSOQ Stress Scores by Demographic Characteristics*

| Characteristic  | Category   | Mean Behavioural Stress | Mean Somatic Stress | Mean Cognitive Stress |
|-----------------|------------|-------------------------|---------------------|-----------------------|
| Gender          | Men        | 27.5                    | 19.9                | 30.1                  |
|                 | Women      | 28.9                    | 31.1                | 32.8                  |
| Age             | 20 to 30   | 28.4                    | 33.8                | 35.0                  |
|                 | 31 to 40   | 27.1                    | 19.0                | 29.4                  |
|                 | 41 to 50   | 35.9                    | 28.9                | 33.6                  |
|                 | 50 +       | 21.3                    | 20.0                | 23.8                  |
| Ethnic Group    | Black      | 28.6                    | 24.0                | 25.3                  |
|                 | White      | 28.0                    | 27.3                | 35.9                  |
| Education Level | < Matric   | 24.0                    | 24.0                | 27.1                  |
|                 | Matric     | 30.2                    | 30.2                | 37.5                  |
|                 | Diploma    | 30.8                    | 37.1                | 30.8                  |
|                 | Degree     | 14.1                    | 21.9                | 28.1                  |
|                 | Post Grad. | 32.0                    | 20.5                | 32.8                  |
| Years in Co.    | < 1        | 27.8                    | 31.8                | 42.6                  |
|                 | 1 to 3     | 26.6                    | 24.4                | 25.0                  |
|                 | 3 to 5     | 38.9                    | 32.6                | 33.3                  |
|                 | 5 to 10    | 21.9                    | 22.4                | 27.6                  |
|                 | 10 +       | 31.3                    | 18.8                | 37.5                  |

*Table 4: Statistical Analysis on COPSOQ Stress Scales*

| Factor Variable | Response Variable  | Test            | Significance Level | Probability |
|-----------------|--------------------|-----------------|--------------------|-------------|
| Gender          | Behavioural Stress | Mann Whitney-U  | 0.05               | 0.6735      |
|                 | Somatic Stress     | Mann Whitney-U  | 0.05               | 0.0254*     |
|                 | Cognitive Stress   | T-Test          | 0.05               | 0.0757      |
| Age             | Behavioural Stress | Kruskall Wallis | 0.05               | 0.6814      |
|                 | Somatic Stress     | ANOVA           | 0.05               | 0.0308*     |
|                 | Cognitive Stress   | ANOVA           | 0.05               | 0.6892      |
| Ethnic Group    | Behavioural Stress | Mann Whitney-U  | 0.05               | 0.8399      |
|                 | Somatic Stress     | T-Test          | 0.05               | 0.1065      |
|                 | Cognitive Stress   | T- Test         | 0.05               | 0.4669      |
| Education Level | Behavioural Stress | Kruskall Wallis | 0.05               | 0.0899      |
|                 | Somatic Stress     | ANOVA           | 0.05               | 0.0687      |
|                 | Cognitive Stress   | Kruskall Wallis | 0.05               | 0.8885      |
| Years in Co.    | Behavioural Stress | ANOVA           | 0.05               | 0.3086      |
|                 | Somatic Stress     | ANOVA           | 0.05               | 0.3906      |
|                 | Cognitive Stress   | ANOVA           | 0.05               | 0.2166      |

\* - Statistically significant at the 5% level

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### 5.2.2 Presenteeism Analysis

A total score for the SPS-6 presenteeism scale (questions 22 to 27 in the survey) was computed. The SPS-6 total score is the sum of the values of the reverse-scored and other items in the scale (see Table 5). Reverse scoring of the three items (Q 23, 26 and 27) was first performed so that the value of the response was flipped to its mirror image (Koopman *et al.*, 2002).

Table 5: SPS-6\* Point Value for Questions

|                   | Q 22, 24 & 25 | Q 23, 26 & 27 |
|-------------------|---------------|---------------|
| Strongly Disagree | 5             | 1             |
| Somewhat Disagree | 4             | 2             |
| Uncertain         | 3             | 3             |
| Somewhat Agree    | 2             | 4             |
| Strongly Agree    | 1             | 5             |

\* - Jointly owned by Merck & Co., Inc., and Stanford University School of Medicine

The SPS-6 total score can range from 6 to 30. Low scores indicate low presenteeism and reduced performance, while a high SPS-6 score indicates a high level of presenteeism; i.e., a greater ability to concentrate on and accomplish work despite health problem(s) (Koopman *et al.*, 2002).

A summary of mean SPS-6 total scores are given by demographic characteristics in Table 6, statistical analysis were performed and are shown in Table 7.



Table 6: Mean SPS-6\* Total Presenteeism Scores by Demographic

Characteristics

| Characteristic  | Category   | Mean Presenteeism |
|-----------------|------------|-------------------|
| Gender          | Men        | 22.5              |
|                 | Women      | 21.8              |
| Age             | 20 to 30   | 20.0              |
|                 | 31 to 40   | 23.5              |
|                 | 41 to 50   | 23.4              |
|                 | 50 +       | 22.4              |
| Ethnic Group    | Black      | 21.5              |
|                 | White      | 22.5              |
| Education Level | < Matric   | 21.7              |
|                 | Matric     | 19.7              |
|                 | Diploma    | 21.4              |
|                 | Degree     | 21.4              |
|                 | Post Grad. | 23.4              |
| Years in Co.    | < 1        | 19.0              |
|                 | 1 to 3     | 22.7              |
|                 | 3 to 5     | 22.1              |
|                 | 5 to 10    | 23.5              |
|                 | 10 +       | 23.0              |

\* - Jointly owned by Merck & Co., Inc., and Stanford University School of Medicine

From Table 6, the 20 to 30 year age group has the lowest presenteeism score of all age groups. Men have higher presenteeism levels than women, and black managers have lower presenteeism scores than white managers.

Table 7: Statistical Analysis on SPS-6\* Total Presenteeism Scale

| Factor Variable | Response Variable | Test           | Significance Level | Probability |
|-----------------|-------------------|----------------|--------------------|-------------|
| Gender          | Presenteeism      | T- Test        | 0.05               | 0.5668      |
| Age             | Presenteeism      | ANOVA          | 0.05               | 0.0413**    |
| Ethnic Group    | Presenteeism      | Mann Whitney-U | 0.05               | 0.4438      |
| Education Level | Presenteeism      | ANOVA          | 0.05               | 0.3238      |
| Years in Co.    | Presenteeism      | ANOVA          | 0.05               | 0.1175      |

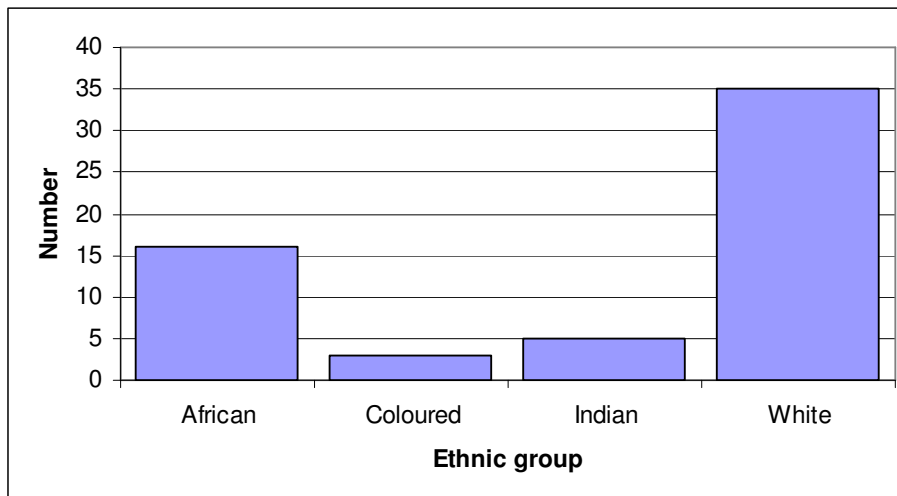
\* - Jointly owned by Merck & Co., Inc., and Stanford University School of Medicine

\*\* - Statistically significant at the 5% level

### 5.2.3 Affirmative Action Analysis

The affirmative action questions were analysed individually. The race distribution of the sample as given in Figure 1 below indicates the small base size for the African, Coloured and Indian managers. To ensure meaningful statistical analysis, two ethnic groups were considered, namely Black (African, Coloured and Indian) and White.

Figure 1: Race Distribution of Respondents



Mean affirmative action scores are presented for Black and White managers in Table 8. Statistical analysis performed on the affirmative action questions is given in Table 9.

*Table 8: Mean Affirmative Action Scores for Black and White Managers*

| Question #   | Mean +/- SD | Black Managers | White Managers |
|--|-------------|----------------|----------------|
| Q14 - Affirmative Action measures are applied fairly in my workplace   | 3.1 +/- 1.0 | 3.0            | 3.1            |
| Q15 - I feel threatened by Affirmative Action  | 3.7 +/- 1.2 | 4.3            | 3.3            |
| Q16 - I believe Affirmative Action will be good for my career  | 2.6 +/- 1.1 | 3.5            | 2.0            |
| Q17 - I have considered emigration due to Affirmative Action   | 3.5 +/- 1.4 | 4.2            | 3.1            |
| Q18 - I feel that my ethnic group is taken into consideration when evaluating my performance                   | 3.3 +/- 1.2 | 3.0            | 3.5            |
| Q19 - Affirmative Action policies (as I know them) will reduce the number of job opportunities available to me | 3.0 +/- 1.2 | 3.9            | 2.3            |
| Q20 - Affirmative Action leads to stress in the work environment   | 2.7 +/- 1.3 | 3.4            | 2.3            |
| Q21 - Affirmative Action policies may impede my success on the job   | 3.2 +/- 1.2 | 3.6            | 2.9            |

*Table 9: Statistical Analysis of Affirmative Action Questions*

| Factor Variable | Response Variable | Test               | Significance Level | Probability |
|-----------------|-------------------|--------------------|--------------------|-------------|
| Gender          | Q14               | T-Test             | 0.05               | 0.5871      |
|                 | Q15               | Mann Whitney-U     | 0.05               | 0.2181      |
|                 | Q16               | T-Test             | 0.05               | 0.5836      |
|                 | Q17               | Kolmogorov Smirnov | 0.05               | 0.5920      |
|                 | Q18               | T-Test             | 0.05               | 0.1090      |
|                 | Q19               | Mann Whitney-U     | 0.05               | 0.7278      |
|                 | Q20               | T-Test             | 0.05               | 0.5271      |
|                 | Q21               | T-Test             | 0.05               | 0.7388      |
| Age             | Q14               | ANOVA              | 0.05               | 0.7801      |
|                 | Q15               | Kruskall Wallis    | 0.05               | 0.3129      |
|                 | Q16               | ANOVA              | 0.05               | 0.9029      |
|                 | Q17               | Kruskall Wallis    | 0.05               | 0.8683      |
|                 | Q18               | ANOVA              | 0.05               | 0.1785      |
|                 | Q19               | Kruskall Wallis    | 0.05               | 0.7425      |
|                 | Q20               | ANOVA              | 0.05               | 0.5291      |
|                 | Q21               | ANOVA              | 0.05               | 0.4271      |
| Ethnic Group    | Q14               | Aspin-Welch        | 0.050              | 0.8852      |
|                 | Q15               | Mann Whitney-U     | 0.001              | 0.000481**  |
|                 | Q16               | T-Test             | 0.001              | 0.000000**  |
|                 | Q17               | Mann Whitney-U     | 0.010              | 0.001953*   |
|                 | Q18               | Kruskall Wallis    | 0.050              | 0.0510      |
|                 | Q19               | Mann Whitney-U     | 0.001              | 0.000000**  |
|                 | Q20               | Mann Whitney-U     | 0.010              | 0.001318*   |
|                 | Q21               | T-Test             | 0.050              | 0.0162      |
| Education Level | Q14               | ANOVA              | 0.05               | 0.4473      |
|                 | Q15               | ANOVA              | 0.05               | 0.4582      |
|                 | Q16               | ANOVA              | 0.05               | 0.8583      |
|                 | Q17               | Kruskall Wallis    | 0.05               | 0.8678      |
|                 | Q18               | Kruskall Wallis    | 0.05               | 0.0888      |
|                 | Q19               | Kruskall Wallis    | 0.05               | 0.8278      |
|                 | Q20               | ANOVA              | 0.05               | 0.2162      |
|                 | Q21               | ANOVA              | 0.05               | 0.7019      |
| Years in Co.    | Q14               | ANOVA              | 0.05               | 0.5823      |
|                 | Q15               | Kruskall Wallis    | 0.05               | 0.8437      |
|                 | Q16               | ANOVA              | 0.05               | 0.7834      |
|                 | Q17               | Kruskall Wallis    | 0.05               | 0.1193      |
|                 | Q18               | ANOVA              | 0.05               | 0.5660      |
|                 | Q19               | Kruskall Wallis    | 0.05               | 0.6522      |
|                 | Q20               | Kruskall Wallis    | 0.05               | 0.7659      |
|                 | Q21               | Kruskall Wallis    | 0.05               | 0.9131      |

\* - Statistically significant at the 1% level

\*\* - Statistically significant at the 0.1% level



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### 5.3 *Internal Consistency*

With a Cronbach's Alpha of 0.80, Turpin *et al.* (2004) have previously shown that the SPS-6 has a high internal consistency, excellent psychometric characteristics, and demonstrates a high degree of reliability and validity. Survey results confirmed high internal consistency of the SPS-6, with a Cronbach's alpha of 0.76 (see Table 10).

The COPSOQ was determined by Kristensen *et al.* (2005) to be a valid and reliable tool for workplace surveys, analytical research, interventions, and international comparisons. The Cronbach's Alpha recorded by Kristensen *et al.* (2005) for the three median length stress scales of the COPSOQ are as indicated in Table 10 below. The Cronbach's alpha values calculated for South African managers surveyed is also tabulated.

From the values presented, one can see that the Cronbach's alpha for internal reliability is lower than the conventional 0.70 for both the behavioural and somatic stress scales. The low alpha value has been attributed by Kristensen *et al.* (2005) to the short length of the scales. Higher Cronbach's alpha values for the long questionnaire scales are given as 0.79 and 0.76 respectively. To ensure higher reliability values, the long version of the behavioural and somatic stress scales should be used in future research.

The Cronbach's alpha for the affirmative action scale was calculated to be 0.79 (see Table 10). No previous reliability values were available for this scale. The



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two positive questions in the scale (Q14 and Q16) were reverse scored. The affirmative action scale demonstrates a high degree of reliability.

*Table 10: Cronbach's Alpha for Individual Survey Scales*

|                    | Presenteeism (SPS-6) | Behavioural Stress | Somatic Stress | Cognitive Stress | Affirmative Action |
|--------------------|----------------------|--------------------|----------------|------------------|--------------------|
| Literature         | 0.8                  | 0.65               | 0.62           | 0.85             | None available     |
| Survey Respondents | 0.76                 | 0.56               | 0.65           | 0.87             | 0.79               |



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## CHAPTER 6 – DISCUSSION OF RESULTS

### 6.1 Hypothesis #1

The null hypothesis states that the level of stress of South African managers is not significantly different from that of managers in other countries as measured by the COPSOQ stress scale.

The alternative hypothesis states that the level of stress of South African managers is significantly different to that of managers in other countries as measured by the COPSOQ stress scale.

The stress levels of South African managers (Table 2) on all three stress scales was found to be significantly higher (p-value = 0.0057) than the average for the COPSOQ scales.

From the mean total COPSOQ stress scores (Table 3), statistical analysis (Table 4) revealed a significant difference (p-value = 0.0308) in the mean between age groups in relation to somatic stress levels, calculated at a 95 percent confidence level. For the age groups 31 to 40 and managers older than 50, the mean somatic stress score calculated was lower than the average (mean, 19.0) and (mean, 20.0) respectively. Similarly, it was found that managers falling in the youngest age group (20 to 30) had the highest mean somatic stress level (mean, 33.8) and the highest cognitive stress level (mean, 35.0) of all the age groups.

In relation to gender, Table 3 indicates that South African female managers have a higher level of stress on all three stress scales compared to their male



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counterparts. Statistical analysis (Table 4) indicated a significant difference ( $p$ -value = 0.0254) in the medians between males and females in terms of somatic stress, with females having a higher stress level (mean, 31.1) versus the lower stress level (mean, 19.9) for males.

Cohen (2002) in (Ornelas and Kleiner, 2003) states that how a person reacts to stress depends on whether they see themselves in control of a situation or overwhelmed by it. De Frank and Ivancevich (1998) indicate that some of the sources of stress in the current global business environment include: downsizing, violence, technology, and diversity. All these sources of stress are present in the current South African work environment. Too much stress at work causes problems with job performance, contributes to high rates of employee turnover and, as a result, can create conflict and disharmony in the workplace (Varca, 1999).

Based on the findings of the survey, the null hypothesis is rejected. South African managers experience significantly higher levels of stress than managers in other countries.



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## 6.2 Hypothesis #2

The null hypothesis states that high levels of stress amongst South African managers is not associated with decreased presenteeism.

The alternative hypothesis states that high levels of stress amongst South African managers is associated with decreased presenteeism.

For the SPS-6 presenteeism scale developed by Merck & Co., Inc., and Stanford University School of Medicine, the score range for presenteeism is from 6 to 30 (Koopman *et al.*, 2002). A low score represents low/decreased presenteeism and thus low productivity. A high score represents high/increased presenteeism and thus higher productivity despite health problems (Koopman *et al.*, 2002).

As shown in Appendix B, the mean presenteeism score for the group of South African managers surveyed was relatively high (mean, 22.1, SD, 4.4). This indicates that in general South African managers have high levels of presenteeism (Table 6), indicating high productivity despite coming to work with health problems they may have.

As can be seen in Table 7, a significant difference exists between the mean levels of presenteeism among age groups ( $p$ -value = 0.0413) at the 95 percent confidence level. The 20 to 30 year age group had a low presenteeism level (mean, 20) relative to the mean for the older age groups. This indicates that this age group is less productive than the older age groups due to health





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problems. This age group represents 37 percent of the South African managers surveyed.

The age groups 31 to 40 and 41 to 50 have mean presenteeism scores of 23.5 and 23.4 respectively, indicating higher productivity despite health problems. Excellent coping mechanisms due to age and experience may play a role in higher productivity levels. Similar to the findings of Turpin *et al.* (2004), presenteeism in the 50+ age group once again decreases (mean, 22.4), indicating that workers report less presenteeism as they age (Table 6). The 20 to 30 year age group had the lowest presenteeism score (mean, 20.0) and suffered from the highest somatic stress (mean, 33.8) and cognitive stress (mean, 35.0) levels of the age groups. They were second highest on the behavioural stress scale (mean, 28.4). This indicates that high stress levels may result in decreased presenteeism in the workplace and thus lower productivity.

No significant differences at the 95 percent confidence level were found for gender, ethnic group, education level or years in company (see Table 7).

Physiological stress responses include symptoms such as stomach ailments, while behavioural stress responses include a reduction in productivity, absenteeism and high turnover (Cox, 1978; Robbins, 2001; Roos and Moller, 1988 in Schaap, 2003). Stress in the work place is a contributing factor to disease, injury and violence as well as lowering worker productivity (Stein, 2001). Estimates in the U.S. indicate that over one third of all employees



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experience reduced work effectiveness due to stress. Excessive stress manifesting itself in health problems such as high blood pressure, tension, headaches, ulcers, insomnia, heart attacks and even death (Urbaniak, 2006). Compsych (2003) indicates that presenteeism can be triggered by high stress levels and can have a significant impact on productivity and a company's bottom line.

Based on the findings of the survey, the null hypothesis is rejected. High levels of stress are associated with decreased presenteeism in South African managers.



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### 6.3 Hypothesis #3

The null hypothesis states that there is no relationship between stress levels and reporting negative impacts of affirmative action.

The alternative hypothesis states that the perception of affirmative action as having negative impacts is associated with higher levels of stress.

The ethnic groups Black and White were tested for significance (Table 9) in relation to hypothesis #3. At the 95 percent confidence level, no significant differences were found for the demographic characteristics: age, gender, education level or years in the company.

In relation to ethnic group, Q14, and Q18 showed no significant difference in mean values between Black and White managers, (see Table 8).

Statistical analysis at the 99 percent confidence level revealed that a significant difference exists in the median values between ethnic groups in relation to Q15, Q16, Q17, Q19, Q20, and Q21.

In Q15 ( $p$ -value = 0.000481), Black managers strongly disagree (mean, 4.3) that they feel threatened by affirmative action, whereas white managers are more neutral (mean, 3.3) with regard to the threat of affirmative action.

In Q16 ( $p$ -value = 0.0000), White managers do not feel that affirmative action will be good for their career (mean, 2.0), whereas Black managers feel that affirmative action will be good for their career (mean, 3.5).



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Q17 revealed a significant difference (see Table 9) between the median values across ethnic groups ( $p$ -value = 0.001953). Black managers indicating that they have not considered emigration due to affirmative action measures (mean, 4.2), while White managers (mean, 3.1) feel neutral about the need to emigrate due to affirmative action measures.

In Q19 ( $p$ -value = 0.0000), it is clear that Black managers do not feel that affirmative action measures will reduce the number of jobs available to them (mean, 3.9), whereas White managers feel strongly that affirmative action measures will reduce the number of jobs available to them (mean, 2.3).

In Q20 ( $p$ -value = 0.001318), White managers feel that affirmative action leads to stress in the work environment (mean, 2.3), while Black managers do not feel that affirmative action leads to stress in the work environment (mean, 3.4).

In Q21 ( $p$ -value = 0.01691), Black managers do not feel that affirmative action policies will impede their success on the job (mean, 3.6), whereas White managers feel that affirmative action policies will impede their success on the job (mean, 2.9).

Ornelas and Kleiner (2003) have indicated that one of the work conditions that may lead to stress includes career concerns where job insecurity, opportunity for growth and advancement play a role. Foot and Venne (1990) similarly discovered a positive relationship between barriers to career advancement and job stress. Nasurdin *et al.*, (2005) found that when employees perceive a lack



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of career opportunities, they are likely to feel uncertain about their future in the organisation, which in turn, leads to job stress.

Sanderson and Andrews (2006), show that certain kinds of workplace environments increase the risk of the onset of common mental disorders. One of the environments being one in which the workplace is experienced as being fundamentally unjust. Adam (2000) indicates that ‘formerly disadvantaged groups’ are singled out for job allocation and government contracts. This is interpreted as bestowing advantage on Blacks as the previously most discriminated against and now politically dominant group of apartheid victims.

Based on the response to the questions relating to the negative perceptions of affirmative action in the South African managerial work environment, it is clear that significant differences exist between Black and White managers.

While White managers have neutral feelings towards the threat of affirmative action and emigration because of affirmative action measures, they feel significantly less comfortable than Black managers. White managers feel strongly that affirmative action measures can impede their success on the job and that these measures create stress in the work environment. Adam (2000) indicates that affirmative action is most resented by the beneficiaries of previously legislated advantage. That it is considered “reverse racial discrimination”, thereby contradicting the ANC’s promise of colour-blind non-racialism (Adam, 2000).



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Based on the findings of the survey, the null hypothesis is rejected. The perception of affirmative action as having negative impacts is associated with higher levels of stress. Higher stress levels are apparent in White South African managers.



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## CHAPTER 7 - CONCLUSION

Within the recognized limitations of this study, the following can be concluded from the data; South African managers experience significantly higher levels of stress than managers in other countries, with female managers experiencing higher levels of stress than men. The youngest age group (20 to 30) suffers from the highest levels of somatic and cognitive stress.

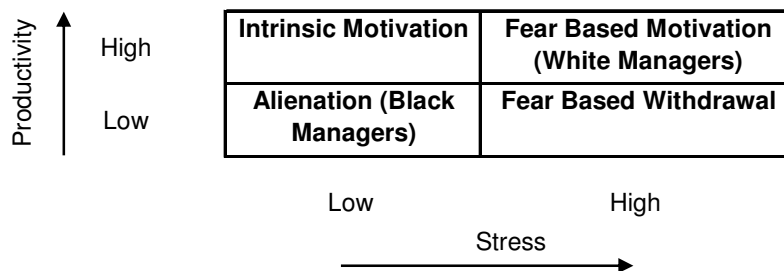
Relatively high presenteeism scores for South African managers indicate high productivity despite health problems. A significant difference was found in the means between age groups, with the youngest age group indicating decreased presenteeism and thus the lowest productivity of all age groups. This lower level of presenteeism corresponds with the high levels of stress suffered by this age group, confirming that high levels of stress affect an employee's health, resulting in less than full productivity and thus decreased presenteeism. This finding is consistent with that of Rothmann (2003).

In relation to affirmative action, Black managers do not feel negatively about affirmative action measures. They have lower overall stress levels compared to White managers, but do not appear to be as productive as White managers – indicated by the lower presenteeism score. It is however felt that the White managers' presenteeism score may be slightly higher due to a concern by survey participants that the study would not be completely anonymous, and/or that they subconsciously report higher scores even if this is not necessarily correct.

White managers feel very strongly about affirmative action measures, confirming previous work (Adam, 2000; Scott *et al.*, 1998) that affirmative action measures are most resented by the beneficiaries of previously legislated advantage. White managers suffer from higher levels of stress than their Black counterparts, yet despite this they experience increased levels of presenteeism and thus higher levels of productivity.

Figure 2 presents a productivity/stress matrix. Based on the findings of the research, White managers suffer from high levels of stress, yet despite these levels are highly productive despite their illness. This would place White South African managers in the top right hand quadrant labelled 'Fear based Motivation'. This indicates that the threat of affirmative action may result in White managers working harder, or feeling that they work harder than Black managers.

*Figure 2: Productivity / Stress Matrix*







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Black managers with low stress levels and lower productivity would place them in the bottom left hand quadrant labelled 'Alienation'. The advantage affirmative action imposes on Black managers appears to take the pressure off Black managers (lower stress levels), but is also associated with lower productivity. This is in contradiction to the conclusion of hypothesis #2, and only appears to be the case between ethnic groups, however no significant differences were found between mean scores. Black managers appear to be alienated from feeling responsible for productivity.

As found by Adam (2000), affirmative action can be a motivator if management is serious about it. Currently White managers appear to be motivated by the threat of affirmative action, however the danger exists that White managers could fall into the bottom right hand quadrant 'Fear based withdrawal' where they will continue to experience high levels of stress, but decreased levels of presenteeism and thus lower productivity.

Young managers currently appear to be in the 'Fear based withdrawal' quadrant. This may be due to the fact that they are not certain what is expected of them in their position, or that mentorship is not taking place as those in higher positions are not spending time coaching them.

Ultimately, one would like to get both Black and White managers into the top left quadrant of the matrix 'Intrinsic motivation'. This would result in high levels of productivity (high presenteeism) and low stress levels. This could be achieved within the companies surveyed, by negotiating the terms of



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affirmative action. Ensuring that white managers need not fear loss of their jobs and instilling in all managers the value that hard work will be rewarded.

Those that do not perform, despite their position or race will not be promoted and could lose their jobs.

Similarly to Malaysia, affirmative action targets a majority of the population and has also generated intense controversy over intra-ethnic inequality (Guan, 2005). Certain Malaysian individuals feel that a prolonged ethnic affirmative action policy in their country will weaken their economic competitiveness. Presenteeism levels in South African managers may be an indicator of this phenomenon.

Future research may be conducted to compare the validity of the model across industries and regions of South Africa. A bigger and more representative sample should be considered, using actual measures of productivity. Qualitative research should be used to support the findings and to better understand the experiences of the different ethnic groups. High stress levels and decreased presenteeism in young South African managers must be confirmed, as these young managers are the future leaders of the country. Coping mechanisms in particular may play a role in their high stress levels.



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**APPENDIX A**

**RESEARCH QUESTIONNAIRE**



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10 August 2007

Dear Sir/ Madam,

**RE: GIBS Research Project**

I am currently concluding my MBA at the Gordon Institute of Business Science (GIBS). I am required to submit a research report in partial fulfilment of the requirements for the degree.

My research focuses on work place stresses in South African managers and how this may or may not result in presenteeism amongst managers. Given the current challenges facing the South African work environment, I would particularly like to see how managers cope with the opportunities and challenges of Affirmative Action.

Your completion of the attached questionnaire (approx. 5 minutes) and participation in this research is greatly appreciated. I would like to thank you in advance for taking the time to complete and return the questionnaire.

Sincerely,

Joris Coopmans



RESEARCH QUESTIONNAIRE

**INTRODUCTION**

Thank you for your participation in this research. This survey represents an opportunity for you to express your views and opinions on your ability to focus on your job despite any possible health problems, and highlight stressors in the work place that can lead to health problems, including the specific influence of Affirmative Action. We strongly encourage you to provide feedback that is open and honest. This will allow meaningful and insightful assessment of stressors in the South African managerial work environment.

**ASSURANCE OF CONFIDENTIALITY**

Protecting your confidentiality is a critical component of the opinion survey process. Your response will be kept strictly confidential and will be reported only in aggregate form.

1. No person in your organisation will see any completed individual questionnaires.
2. Only statistical summaries of the results for whole groups of employees will be reported.
3. The survey results will be tabulated.

The questionnaire consists of three sections:

- a) The causes of workplace stress;
- b) Affirmative action in the work place
- c) The impact of stress on work performance (Presenteeism)

**Note:** If you are not a South African citizen, please do not respond to this questionnaire.

**Thank you for your participation.** Please mark your response with an X and return your completed survey by email to [jbragg\\_20@hotmail.com](mailto:jbragg_20@hotmail.com)

**Biographical Data**

|                             |          |          |         |        |            |
|-----------------------------|----------|----------|---------|--------|------------|
| <b>Age</b>                  | 20-30    | 31-40    | 41-50   | 50+    |            |
| <b>Gender</b>               | Male     | Female   |         |        |            |
| <b>Ethnic Group</b>         | African  | Coloured | Indian  | White  |            |
| <b>Educational Level</b>    | < Matric | Matric   | Diploma | Degree | Post grad. |
| <b>Years in the Company</b> | < 1      | 1 - 3    | 3 - 5   | 5 - 10 | 10 +       |

**A. Evidence of Stressors in the Workplace**

**Directions:** Please consider each of the following statements and indicate how well the description fits your situation during the past month.

|   | 1. Correct | 2. Almost Correct | 3. Somewhat correct | 4. Slightly correct | 5. Incorrect |
|---|------------|-------------------|---------------------|---------------------|--------------|
| 1   I have not been able to stand dealing with other people |            |                   |                     |                     |              |
| 2   I have not had the time to relax or enjoy myself        |            |                   |                     |                     |              |
| 3   I have been a bit touchy                                |            |                   |                     |                     |              |
| 4   I have lacked initiative                                |            |                   |                     |                     |              |

**Directions:** How much of the time during the past month have you -

|           |          |              |           |          |
|-----------|----------|--------------|-----------|----------|
| 1. Always | 2. Often | 3. Sometimes | 4. Seldom | 5. Never |
|-----------|----------|--------------|-----------|----------|



**B. Evidence of Affirmative Action in the work place**

|    |   | Yes | No |
|----|---|-----|----|
| 13 | At least some Affirmative Action measures are applied at my place of work |     |    |

|    |  | 1. Strongly Agree | 2. Agree | 3. Neutral | 4. Disagree | 5. Strongly Disagree |
|----|--|-------------------|----------|------------|-------------|----------------------|
| 14 | Affirmative Action measures are applied fairly in my workplace   |                   |          |            |             |                      |
| 15 | I feel threatened by Affirmative Action  |                   |          |            |             |                      |
| 16 | I believe Affirmative Action will be good for my career  |                   |          |            |             |                      |
| 17 | I have considered emigration due to affirmative action   |                   |          |            |             |                      |
| 18 | I feel that my ethnic group is taken into consideration when evaluating my performance                   |                   |          |            |             |                      |
| 19 | Affirmative Action policies (as I know them) will reduce the number of job opportunities available to me |                   |          |            |             |                      |
| 20 | Affirmative Action leads to stress in the work environment   |                   |          |            |             |                      |
| 21 | Affirmative Action policies may impede my success on the job   |                   |          |            |             |                      |

**C. The Impact of Stress on Work Performance of South African Managers (Stanford Presenteeism Scale)\***

**Directions:** Please describe your work experiences in the *past month*. These experiences may be affected by many environmental as well as personal factors and may change from time to time. For each of the following statements, please indicate which of the following responses shows your agreement or disagreement with this statement in describing your *work* experiences in the past month.

\* Note that the words 'back pain', 'headache', 'cardiovascular problem', 'illness', 'flu', 'stomach problem', or other similar descriptors can be substituted for the words 'health problem' in any of these items.

|    |   | 1. Strongly Agree | 2. Somewhat Agree | 3. Uncertain | 4. Somewhat Disagree | 5. Strongly Disagree |
|----|---|-------------------|-------------------|--------------|----------------------|----------------------|
| 22 | Because of my (health problem)*, the stresses of my job were much harder to handle.   |                   |                   |              |                      |                      |
| 23 | Despite having my (health problem)*, I was able to finish hard tasks in my work.      |                   |                   |              |                      |                      |
| 24 | My (health problem)* distracted me from taking pleasure in my work.                   |                   |                   |              |                      |                      |
| 25 | I felt hopeless about finishing certain work tasks, due to my (health problem)*.      |                   |                   |              |                      |                      |
| 26 | At work, I was able to focus on achieving my goals, despite my (health problem)*.     |                   |                   |              |                      |                      |
| 27 | Despite having my (health problem)*, I felt energetic enough to complete all my work. |                   |                   |              |                      |                      |

+ The Stanford Presenteeism Scale (SPS-6, 2001 version) is jointly owned by Merck & Co., Inc., and Stanford University School of Medicine.



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**APPENDIX B**  
**DATA ANALYSIS**



| Respondent | Age | Gender | E. Group | Ed. Level | Yrs. in Co. | Behavioral Stress | Somatic Stress | Cognitive Stress | Q. 13 | Q. 14 | Q. 15 | Q. 16 | Q. 17 | Q. 18 | Q. 19 | Q. 20 | Q. 21 | Presenteeism |
|------------|-----|--------|----------|-----------|-------------|-------------------|----------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|
| 1          | 1   | 2      | 5        | 5         | 1           | 18.75             | 18.75          | 56.25            | 1     | 3     | 3     | 1     | 2     | 3     | 2     | 2     | 3     | 22.00        |
| 2          | 2   | 1      | 5        | 5         | 1           | 43.75             | 31.25          | 56.25            | 1     | 3     | 2     | 2     | 1     | 2     | 1     | 2     | 2     | 20.00        |
| 3          | 1   | 1      | 1        | 4         | 1           | 12.50             | 6.25           | 25.00            | 1     | 3     | 5     | 3     | 3     | 3     | 4     | 5     | 4     | 20.00        |
| 4          | 1   | 1      | 5        | 4         | 2           | 12.50             | 43.75          | 50.00            | 1     | 3     | 4     | 2     | 2     | 4     | 2     | 2     | 3     | 23.00        |
| 5          | 1   | 2      | 1        | 3         | 2           | 43.75             | 37.50          | .00              | 1     | 3     | 4     | 4     | 5     | 5     | 4     | 5     | 5     | 21.00        |
| 6          | 4   | 2      | 5        | 5         | 5           | .00               | .00            | 6.25             | 1     | 3     | 5     | 3     | 5     | 3     | 3     | 5     | 5     | 29.00        |
| 7          | 1   | 1      | 1        | 3         | 2           | 37.50             | 37.50          | 18.75            | 1     | 4     | 4     | 4     | 5     | 5     | 5     | 4     | 2     | 25.00        |
| 8          | 1   | 1      | 5        | 4         | 2           | .00               | .00            | 25.00            | 1     | 3     | 3     | 2     | 4     | 4     | 2     | 3     | 3     | 20.00        |
| 9          | 1   | 2      | 5        | 3         | 3           | 68.75             | 50.00          | 50.00            | 1     | 4     | 3     | 2     | 3     | 4     | 2     | 2     | 3     | 21.00        |
| 10         | 1   | 1      | 5        | 1         | 1           | 50.00             | 50.00          | 50.00            | 1     | 2     | 2     | 2     | 2     | 3     | 2     | 3     | 3     | 16.00        |
| 11         | 1   | 2      | 1        | 2         | 1           | 25.00             | 62.50          | 31.25            | 1     | 3     | 3     | 3     | 4     | 1     | 4     | 2     | 3     | 13.00        |
| 12         | 2   | 2      | 5        | 1         | 1           | 12.50             | .00            | .00              | 1     | 2     | 4     | 3     | 5     | 3     | 2     | 4     | 5     | 26.00        |
| 13         | 3   | 1      | 1        | 2         | 3           | 31.25             | 31.25          | 37.50            | 1     | 2     | 5     | 4     | 5     | 2     | 4     | 3     | 4     | 20.00        |
| 14         | 4   | 2      | 5        | 3         | 4           | 31.25             | 50.00          | 56.25            | 1     | 3     | 2     | 2     | 3     | 4     | 2     | 2     | 2     | 15.00        |
| 15         | 2   | 2      | 5        | 1         | 2           | .00               | 18.75          | 31.25            | 1     | 4     | 1     | 1     | 3     | 3     | 3     | 2     | 2     | 21.00        |
| 16         | 1   | 2      | 1        | 3         | 1           | 43.75             | 56.25          | 43.75            | 1     | 4     | 2     | 4     | 2     | 2     | 2     | 2     | 2     | 18.00        |
| 17         | 1   | 2      | 1        | 3         | 1           | 25.00             | 31.25          | 56.25            | 1     | 3     | 4     | 3     | 4     | 2     | 4     | 3     | 3     | 13.00        |
| 18         | 1   | 1      | 1        | 1         | 4           | 18.75             | 6.25           | 12.50            | 1     | 1     | 4     | 2     | 4     | 1     | 3     | 2     | 3     | 23.00        |
| 19         | 1   | 2      | 5        | 1         | 4           | 43.75             | 31.25          | 31.25            | 1     | 3     | 4     | 4     | 3     | 2     | 3     | 3     | 3     | 27.00        |
| 20         | 1   | 2      | 1        | 3         | 2           | 18.75             | 56.25          | 12.50            | 1     | 4     | 5     | 3     | 3     | 2     | 4     | 4     | 4     | 18.00        |
| 21         | 2   | 1      | 5        | 3         | 2           | 12.50             | .00            | 18.75            | 1     | 3     | 5     | 1     | 2     | 3     | 2     | 1     | 1     | 30.00        |
| 22         | 2   | 2      | 1        | 2         | 2           | 43.75             | 31.25          | 37.50            | 1     | 1     | 5     | 5     | 5     | 1     | 5     | 5     | 5     | 16.00        |
| 23         | 1   | 1      | 5        | 1         | 1           | 18.75             | 37.50          | 37.85            | 1     | 3     | 4     | 1     | 4     | 2     | 2     | 1     | 2     | 17.00        |
| 24         | 2   | 1      | 5        | 3         | 3           | 6.25              | 25.00          | .00              | 1     | 4     | 4     | 3     | 2     | 4     | 2     | 1     | 2     | 24.00        |
| 25         | 2   | 2      | 5        | 3         | 2           | 25.00             | 31.25          | 12.50            | 1     | 2     | 3     | 3     | 5     | 3     | 3     | 2     | 3     | 21.00        |
| 26         | 4   | 2      | 5        | 2         | 5           | 25.00             | 12.50          | 25.00            | 1     | 3     | 2     | 2     | 4     | 4     | 2     | 2     | 4     | 18.00        |
| 27         | 2   | 1      | 5        | 2         | 4           | 25.00             | 25.00          | 56.25            | 1     | 3     | 3     | 1     | 1     | 3     | 2     | 2     | 3     | 25.00        |
| 28         | 2   | 2      | 5        | 5         | 1           | 6.25              | 25.00          | 37.50            | 1     | 4     | 5     | 2     | 5     | 5     | 4     | 5     | 5     | 30.00        |
| 29         | 2   | 2      | 5        | 5         | 4           | 18.75             | 25.00          | 25.00            | 1     | 2     | 5     | 4     | 2     | 3     | 3     | 2     | 3     | 25.00        |
| 30         | 2   | 1      | 5        | 5         | 4           | 25.00             | .00            | 25.00            | 1     | 4     | 2     | 2     | 2     | 3     | 1     | 2     | 2     | 30.00        |
| 31         | 2   | 1      | 1        | 5         | 4           | 25.00             | .00            | 18.75            | 1     | 1     | 5     | 5     | 1     | 5     | 5     | 1     | 1     | 18.00        |
| 32         | 2   | 1      | 1        | 5         | 2           | 37.50             | .00            | .00              | 1     | 4     | 5     | 4     | 5     | 2     | 5     | 5     | 5     | 28.00        |
| 33         | 3   | 1      | 5        | 5         | 2           | 56.25             | 18.75          | 12.50            | 1     | 2     | 1     | 1     | 1     | 4     | 1     | 1     | 1     | 25.00        |
| 34         | 1   | 2      | 5        | 5         | 4           | 31.25             | 25.00          | 43.75            | 1     | 3     | 3     | 3     | 4     | 4     | 3     | 3     | 3     | 21.00        |
| 35         | 2   | 1      | 5        | 3         | 4           | 25.00             | 43.75          | 37.50            | 1     | 3     | 4     | 1     | 3     | 5     | 2     | 2     | 3     | 26.00        |
| 36         | 2   | 2      | 1        | 5         | 2           | 6.25              | 12.50          | 6.25             | 1     | 2     | 5     | 4     | 5     | 2     | 5     | 4     | 5     | 26.00        |
| 37         | 2   | 2      | 1        | 5         | 5           | 37.50             | 12.50          | 43.75            | 1     | 2     | 4     | 2     | 2     | 2     | 2     | 2     | 2     | 23.00        |
| 38         | 3   | 2      | 5        | 5         | 3           | 81.25             | 56.25          | 93.75            | 1     | 3     | 4     | 2     | 2     | 3     | 2     | 2     | 2     | 20.00        |
| 39         | 1   | 1      | 1        | 4         | 2           | 12.50             | 6.25           | 37.50            | 1     | 3     | 5     | 3     | 3     | 3     | 4     | 5     | 4     | 20.00        |
| 40         | 1   | 1      | 1        | 4         | 4           | 12.50             | 37.50          | 18.75            | 1     | 3     | 4     | 4     | 5     | 3     | 3     | 4     | 4     | 22.00        |
| 41         | 1   | 2      | 5        | 4         | 3           | 50.00             | 50.00          | 31.25            | 1     | 3     | 3     | 2     | 3     | 4     | 2     | 3     | 2     | 19.00        |
| 42         | 1   | 2      | 1        | 4         | 4           | 6.25              | 12.50          | 6.25             | 1     | 5     | 5     | 3     | 5     | 5     | 3     | 4     | 5     | 22.00        |
| 43         | 2   | 1      | 1        | 4         | 5           | 6.25              | 18.75          | 31.25            | 1     | 4     | 4     | 3     | 5     | 4     | 4     | 4     | 4     | 25.00        |
| 44         | 2   | 1      | 1        | 5         | 2           | 37.50             | 12.50          | 18.75            | 1     | 5     | 5     | 3     | 5     | 5     | 4     | 2     | 3     | 23.00        |
| 45         | 2   | 1      | 1        | 5         | 5           | 81.25             | 18.75          | 68.75            | 1     | 2     | 5     | 4     | 5     | 3     | 4     | 2     | 4     | 22.00        |
| 46         | 4   | 1      | 5        | 5         | 3           | 25.00             | 12.50          | 6.25             | 1     | 4     | 2     | 3     | 2     | 4     | 2     | 2     | 4     | 24.00        |
| 47         | 3   | 2      | 5        | 5         | 4           | .00               | 12.50          | .00              | 1     | 3     | 4     | 2     | 2     | 3     | 2     | 2     | 3     | 28.00        |
| 48         | 2   | 1      | 1        | 5         | 2           | 37.50             | 12.50          | 18.75            | 1     | 5     | 5     | 3     | 5     | 5     | 4     | 2     | 3     | 23.00        |
| 49         | 1   | 2      | 5        | 5         | 2           | 43.75             | 62.50          | 81.25            | 1     | 4     | 2     | 2     | 4     | 3     | 2     | 1     | 1     | 16.00        |
| 50         | 3   | 2      | 5        | 5         | 2           | 25.00             | 18.75          | 43.75            | 1     | 1     | 4     | 1     | 1     | 3     | 1     | 1     | 1     | 29.00        |
| 51         | 2   | 1      | 5        | 5         | 1           | 50.00             | 31.25          | 75.00            | 1     | 4     | 4     | 1     | 1     | 5     | 3     | 3     | 4     | 14.00        |
| 52         | 3   | 2      | 5        | 3         | 5           | 37.50             | 50.00          | 50.00            | 1     | 2     | 3     | 2     | 4     | 2     | 2     | 1     | 2     | 18.00        |
| 53         | 2   | 2      | 5        | 2         | 5           | 31.25             | 18.75          | 37.50            | 1     | 4     | 2     | 2     | 5     | 4     | 3     | 1     | 2     | 26.00        |
| 54         | 2   | 2      | 5        | 5         | 2           | 37.50             | 50.00          | 37.50            | 1     | 4     | 4     | 1     | 5     | 5     | 2     | 3     | 3     | 19.00        |
| 55         | 4   | 1      | 5        | 3         | 2           | 25.00             | 25.00          | 25.00            | 1     | 3     | 4     | 3     | 5     | 5     | 5     | 3     | 5     | 26.00        |
| 56         | 3   | 1      | 5        | 5         | 3           | 18.75             | 6.25           | 31.25            | 1     | 4     | 5     | 2     | 5     | 4     | 4     | 4     | 5     | 18.00        |
| 57         | 2   | 2      | 1        | 5         | 2           | 18.75             | 12.50          | 12.50            | 1     | 1     | 3     | 4     | 5     | 4     | 3     | 3     | 3     | 24.00        |
| 58         | 3   | 2      | 1        | 5         | 3           | 37.50             | 37.50          | .00              | 1     | 5     | 5     | 5     | 5     | 1     | 5     | 5     | 5     | 29.00        |
| 59         | 1   | 2      | 1        | 3         | 3           | 31.25             | 25.00          | 50.00            | 1     | 3     | 3     | 3     | 5     | 3     | 4     | 4     | 4     | 24.00        |



|             | Age        | Gender     | E. Group   | Ed. Level  | Yrs. in Co. | Behavioral Stress | Somatic Stress | Cognitive Stress | Q. 13      | Q. 14      | Q. 15      | Q. 16      | Q. 17      | Q. 18      | Q. 19      | Q. 20      | Q. 21      | Presenteeism |             |
|-------------|------------|------------|------------|------------|-------------|-------------------|----------------|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|-------------|
| Min         | 1.0        | 1.0        | 1.0        | 1.0        | 1.0         | .0                | .0             | .0               | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | 1.0          | 13.0        |
| Max         | 4.0        | 2.0        | 5.0        | 5.0        | 5.0         | 81.3              | 62.5           | 93.8             | 1.0        | 5.0        | 5.0        | 5.0        | 5.0        | 5.0        | 5.0        | 5.0        | 5.0        | 5.0          | 30.0        |
| <b>Mean</b> | <b>1.9</b> | <b>1.5</b> | <b>3.4</b> | <b>3.7</b> | <b>2.7</b>  | <b>28.3</b>       | <b>26.0</b>    | <b>31.6</b>      | <b>1.0</b> | <b>3.1</b> | <b>3.7</b> | <b>2.6</b> | <b>3.5</b> | <b>3.3</b> | <b>3.0</b> | <b>2.7</b> | <b>3.2</b> | <b>3.2</b>   | <b>22.1</b> |
| Median      | 2.0        | 2.0        | 5.0        | 4.0        | 2.0         | 25.0              | 25.0           | 31.3             | 1.0        | 3.0        | 4.0        | 3.0        | 4.0        | 3.0        | 3.0        | 2.0        | 3.0        | 2.0          | 22.0        |
| Stdev       | .9         | .5         | 2.0        | 1.4        | 1.3         | 18.3              | 17.9           | 21.5             | .0         | 1.0        | 1.2        | 1.1        | 1.4        | 1.2        | 1.2        | 1.3        | 1.2        | 1.2          | 4.4         |
| Age         | 1 Mean     |            |            |            |             | 28.4              | 33.8           | 35.0             | 1.0        | 3.2        | 3.6        | 2.7        | 3.6        | 3.1        | 3.0        | 3.0        | 3.1        | 3.1          | 20.0        |
|             | 2 Mean     |            |            |            |             | 27.1              | 19.0           | 29.4             | 1.0        | 3.0        | 3.9        | 2.7        | 3.5        | 3.5        | 3.1        | 2.6        | 3.1        | 3.1          | 23.5        |
|             | 3 Mean     |            |            |            |             | 35.9              | 28.9           | 33.6             | 1.0        | 2.8        | 3.9        | 2.4        | 3.1        | 2.8        | 2.6        | 2.4        | 2.9        | 2.9          | 23.4        |
|             | 4 Mean     |            |            |            |             | 21.3              | 20.0           | 23.8             | 1.0        | 3.2        | 3.0        | 2.6        | 3.8        | 4.0        | 2.8        | 2.8        | 4.0        | 4.0          | 22.4        |
|             | Stdev      |            |            |            |             | 6.04              | 7.14           | 5.04             | .00        | .21        | .42        | .15        | .28        | .54        | .21        | .29        | .49        | .49          | 1.61        |
| Gender      | 1 Mean     |            |            |            |             | 27.5              | 19.9           | 30.1             | 1.0        | 3.1        | 3.9        | 2.6        | 3.3        | 3.6        | 3.0        | 2.6        | 3.1        | 3.1          | 22.5        |
|             | 2 Mean     |            |            |            |             | 28.9              | 31.1           | 32.8             | 1.0        | 3.0        | 3.6        | 2.7        | 3.8        | 3.1        | 2.9        | 2.8        | 3.2        | 3.2          | 21.8        |
|             | Stdev      |            |            |            |             | .96               | 7.88           | 1.91             | .00        | .10        | .23        | .12        | .35        | .35        | .09        | .15        | .08        | .08          | .47         |
| E. Group    | 1 Mean     |            |            |            |             | 28.6              | 24.0           | 25.3             | 1.0        | 3.0        | 4.3        | 3.5        | 4.2        | 3.0        | 3.9        | 3.4        | 3.6        | 3.6          | 21.5        |
|             | 5 Mean     |            |            |            |             | 28.0              | 27.3           | 35.9             | 1.0        | 3.1        | 3.3        | 2.0        | 3.1        | 3.5        | 2.3        | 2.3        | 2.9        | 2.9          | 22.5        |
|             | Stdev      |            |            |            |             | .43               | 2.38           | 7.53             | .00        | .03        | .74        | 1.07       | .81        | .39        | 1.13       | .80        | .54        | .54          | .74         |
| Ed. Level   | 1 Mean     |            |            |            |             | 24.0              | 24.0           | 27.1             | 1.0        | 2.5        | 3.2        | 2.2        | 3.5        | 2.3        | 2.5        | 2.5        | 3.0        | 3.0          | 21.7        |
|             | 2 Mean     |            |            |            |             | 30.2              | 30.2           | 37.5             | 1.0        | 2.7        | 3.3        | 2.8        | 4.0        | 2.5        | 3.3        | 2.5        | 3.5        | 3.5          | 19.7        |
|             | 3 Mean     |            |            |            |             | 30.8              | 37.1           | 30.8             | 1.0        | 3.2        | 3.6        | 2.7        | 3.6        | 3.5        | 3.1        | 2.6        | 2.9        | 2.9          | 21.4        |
|             | 4 Mean     |            |            |            |             | 14.1              | 21.9           | 28.1             | 1.0        | 3.4        | 4.1        | 2.8        | 3.8        | 3.8        | 3.0        | 3.8        | 3.6        | 3.6          | 21.4        |
|             | 5 Mean     |            |            |            |             | 32.0              | 20.5           | 32.8             | 1.0        | 3.1        | 3.9        | 2.6        | 3.3        | 3.4        | 2.9        | 2.6        | 3.1        | 3.1          | 23.4        |
|             | Stdev      |            |            |            |             | 7.47              | 6.87           | 4.13             | .00        | .37        | .39        | .26        | .27        | .64        | .30        | .54        | .31        | .31          | 1.34        |
| Yrs. In Co. | 1 Mean     |            |            |            |             | 27.8              | 31.8           | 42.6             | 1.0        | 3.1        | 3.5        | 2.3        | 3.0        | 2.8        | 2.7        | 2.9        | 3.3        | 3.3          | 19.0        |
|             | 2 Mean     |            |            |            |             | 26.6              | 24.4           | 25.0             | 1.0        | 3.1        | 3.9        | 2.7        | 3.9        | 3.6        | 3.3        | 2.9        | 3.1        | 3.1          | 22.7        |
|             | 3 Mean     |            |            |            |             | 38.9              | 32.6           | 33.3             | 1.0        | 3.6        | 3.8        | 2.9        | 3.6        | 3.2        | 3.0        | 2.9        | 3.4        | 3.4          | 22.1        |
|             | 4 Mean     |            |            |            |             | 21.9              | 22.4           | 27.6             | 1.0        | 2.8        | 3.8        | 2.8        | 2.9        | 3.4        | 2.7        | 2.4        | 2.9        | 2.9          | 23.5        |
|             | 5 Mean     |            |            |            |             | 31.3              | 18.8           | 37.5             | 1.0        | 2.9        | 3.6        | 2.6        | 4.3        | 3.1        | 2.9        | 2.4        | 3.3        | 3.3          | 23.0        |
|             | Stdev      |            |            |            |             | 6.33              | 6.04           | 7.18             | .00        | .29        | .16        | .23        | .58        | .28        | .25        | .26        | .20        | .20          | 1.78        |