MENTAL HEALTH AND THE WORKPLACE:

A MULTIDISCIPLINARY EXAMINATION OF THE INDIVIDUAL AND ORGANIZATIONAL

ANTECEDENTS AND OUTCOMES OF STRESS, ANXIETY AND DEPRESSED MOOD

by

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DEDICATION

This dissertation and doctoral degree are dedicated to two groups of individuals.

First, I would like to dedicate my doctoral degree to my parents and grandparents. Through their hard work, love and encouragement I was provided with opportunities that previous generations could never have imagined. For their work ethic, love and inspiration that have propelled me to this level of academic achievement, I am eternally grateful.

Second, I would like to dedicate this dissertation to the men and women who struggle with chronic stress, anxiety and depression, each and every day. It is these individuals who are the real heroes, as most of their valiant efforts go unrecognized. While progress is being made, a negative stigma is still strongly associated with mental illness in the workplace. For those individuals who grapple with psychological distress on a daily basis, but try to continue living life to the fullest and to set lofty goals, may all your dreams come true. For we cannot truly appreciate brilliant light until we've experienced darkness.

ABSTRACT

This study examines the effects of the interaction between the individual and the environment on mental health. More specifically, the impact of the organization on the employee is examined with respect to levels of employee stress, anxiety and depressed mood. By integrating the psychological and organizational literatures a conceptual framework and a-priori model were developed to examine employee mental health. A financial services organization served as a case-study, with employees from all hierarchical levels, and geographic regions in Canada being required to fill out the questionnaire instrument. A sample size of 2,507 employees (57% response rate) was obtained.

The prevalence of stress, anxiety and depressed mood was examined in order to provide much needed statistics concerning the percentage of working Canadians experiencing various forms of psychological distress. The relationships between stress, anxiety and depressed mood were also examined to assess the degree of comorbidity among the three forms of psychological distress. Key antecedents and outcomes of psychological distress were examined and modelled. In addition, the impact of various coping strategies and supervisor behaviours were examined for their impact on levels of stress, anxiety and depressed mood in the sample. Structural equation modelling led to the formation of an Employee Mental Health model, with job stress, perceived control and role overload emerging as key antecedents, and burnout and negative productivity emerging as critical outcomes of stress, anxiety and depressed mood. Gender differences were examined (while controlling for job type) and significant differences emerged with respect to the prevalence of anxiety and depressed mood, and the varying importance of role overload as an antecedent factor. Interventions are discussed for improving the mental health of employees. The end result is a comprehensive study of employee mental health with implications for employees, employers, health care practitioners, and public policy makers.

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1. Introduction

Work[1] is a central and defining characteristic of most of our daily lives. The amount of time and energy we spend at work represents a significant component of our day. Work provides us with the means to sustain ourselves, and may engender feelings of self-worth, usefulness and belonging. In fact, authors have long written about the benefits of work to human well-being, including the positive role that work plays in our sense of identity and self-esteem (Quick et al., 1992).

Just as work plays an undeniable role in our well-being, it can also play a critical role in mental disorder (Neff, 1985). Recent research evidence suggests that psychological disorders in the workplace are a growing problem, and in 1992 were, for the first time, reported among the top-ten work related diseases and injuries in the U.S. (National Institute for Occupational Safety and Health, 1992).

The Canadian Mental Health Association (CMHA) (1995) suggested that Canadians are more stressed, anxious and depressed than ever before, and cite these three conditions as the most common psychological problems facing Canadians. Their report went on to suggest that work pressures may be contributing to the decline in mental health. This postulation was, however, not tested.

The workplace can be considered a rich setting for the collection of data on occupational health and illness. As Snow and Kline (1995, p. 222) stated, "The workplace represents a critical social setting due to its centrality and pervasive influence on the lives

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[1] By work this study is focussing on the set of activities and resultant social relations generally considered to be gainful employment.

of adults. It is therefore an excellent laboratory for conducting stress related research. It provides access to a substantial portion of the adult population ranging from those at risk but asymptomatic to those showing signs of symptomatology to those in need of treatment".

The number of employees grappling with mental health problems may be even higher than reported as the stigma associated with mental illness likely prevents other individuals from coming forward. In fact, the negative stigma associated with mental illness appears to still be quite strong despite general societal perceptions of increased acceptance of mental illness (Perez and Wilkerson, 1998). Perez and Wilkerson (1998), for example, noted that a high number of Americans (percentage not specified) believed that mental illness may be caused by a lack of self-discipline. The authors also reported that only 1 in 5 persons in the U.S. felt "comfortable" being around someone they knew to be mentally ill. Thus, from a research perspective, providing accurate estimates of the number of employees grappling with stress, anxiety and depressed mood will increase awareness of the prevalence of psychological problems in the workplace and potentially play an important part in reducing the negative stigma associated with mental ill-health.

This thesis, armed with information that stress, anxiety and depressed mood are the three most common psychological problems facing Canadians, sets out to examine the individual and organizational factors that may be contributing to the onset or perpetuation of these psychological problems in the working populous, and the consequences they have for both individuals and organizations alike. The model tested in this thesis builds upon the research reported in both the psychological and organizational literatures. By

combining the organizational and psychological literatures it is hoped that a more comprehensive understanding of the interactive effects between individual and organizational variables will emerge with respect to employee mental health. The main strength of this approach is that it inherently recognizes the potentially important contribution work variables can make to psychological well-being. The approach used in this thesis is consistent with that espoused by Mazure and Druss (1995) who have called on researchers to increase their attempts at specifying particular disorders in the workplace and to integrate biological, psychological and social factors into a deeper understanding of the complex relationships involving work and mental illness. This integration is also consistent with the views espoused by University of Toronto's Dr. Martin Shain, Head of the Workplace Program, Centre for Health Promotion, who states that health in the workplace is increasingly seen less as a state and more as a dynamic ever-changing product of transactions between individuals and their social, physical environments (Perez and Wilkerson, 1998).

Combining the organizational and psychological literature also increased the complexity of the research as the two literatures often used different terminology to describe the same phenomena. In most organizational research, for example, employee outcomes are dealt with under the label of 'well-being'. Most psychological and psychiatric research, on the other hand, uses the term 'mental health'. This study uses the terms well-being and mental health seemingly interchangeably, but we have tried to be consistent in reporting the terminology used by the various authors. Whether termed well-being or mental health, the point to emphasize is that this thesis has operationalized these terms

through the examination of three forms of psychological distress: stress, anxiety and depressed mood.

This dissertation is based on a case-study of a large financial service organization with a workforce of approximately 44,000 employees across Canada. A questionnaire survey was used to capture the data and was randomly distributed to 10% of the workforce, from coast to coast, resulting in 2,507 useable questionnaires and a response rate of 57%. Statistical analysis of the demographic data revealed that the sample closely mirrors the population in terms of job type, gender and geographic region. More detailed information on the sample is provided in the methodology chapter of the thesis. The large sample size and its respresentativeness with respect to gender and geographic region suggests that the findings from this research can be generalized across the financial services industry at a minimum, and perhaps even to the Canadian workforce as a whole.

The dissertation is divided into nine primary chapters (outside of the introduction). The relevance of the study is presented first (chapter two) in order to establish the need for this research. Second, the research objectives (chapter 3) are stated up-front to ensure that the purpose of the research is clear from the outset. Third, the a-priori model used in our study is introduced after first reviewing the models of stress in the organizational and mental health literature (chapter 4).

Fourth, the literature review (chapter 5) provides the theoretical foundation for the study by combining relevant aspects of both the psychological and organizational literatures. The literature review begins with a brief overview of the history of work and well-being research. The independent variables of stress, anxiety and depressed mood

are introduced and discussed, with special consideration given to their role in the workplace. The relationships found between the three independent variables in previous research are then reviewed, along with the literature on the individual, individual-organizational interface, and organizational antecedents and consequences of stress, anxiety and depressed mood. This is followed by a review of the gender literature which provides insights into the differential vulnerability of men and women to stress, anxiety and depressed mood, and the potentially different ways that men and women cope with psychological distress in the workplace. An analysis of job type differences in vulnerability to stress is also included in this section, as job type has been found to be an important controlling variable in previous analyses of gender differences (e.g., Duxbury and Higgins, 1994).

The sixth chapter includes a-priori theoretical development and the presentation of key propositions expected from the data. The methodology section (chapter 7) includes a discussion of the sample, method of data collection, the measures utilized in the survey, and the data analysis techniques. The statistical methods used to examine each of the study's primary objectives are also presented in this chapter. The results of the study are presented in chapter 8. Gender differences (controlling for job-type) are discussed within the context of each objective. The discussion (chapter 9) focuses on the relevance and implications of the key findings. This section builds upon the a-priori theory development and develops theoretical reasons to support identified variable relationships. The conclusions (chapter 10) places the findings of the thesis into context, and outlines the benefits and limitations of the study.

2. Why Study the Impact of Work on Mental Health?

This study aims to play an important role in the evolutionary awareness of the importance of the workplace to the well-being of employees. In the past, there has been a reluctance on the part of organizational researchers to study employee mental health/illness partly, as noted by Kinicki et al. (1996), because of a widely held belief that mental health issues are caused primarily by physical rather than social or psychological events. Jenkins (1976) can be identified as one of the first scholars that, in addition to considering the interaction of psychological (mind) factors and physical (body) factors, also stressed the potential importance of the social environment as a critical determinant of mental health/illness. Over the past two decades there has been an evolution in the thinking related to health and illness, and a growing recognition that the etiology of poor mental health is multifactorial (Baker and Green, 1991), and that working life can have an important impact on the health and well-being of employees (Baker and Green, 1991; Cooper and Cartwright, 1994). Some authors have suggested that there is "an awakening of how illiterate we really are in the recognition of mental illness as a powerful deterrent to sustainable business and economic performance, and conversely what a major asset healthy mental states are in the work and marketplace" (Perez and Wilkerson, 1998, p. 210).

Since many adults spend at least half of their waking lives in work related activities, it seems logical that social and psychological factors, in addition to physical factors, may have important influences on employee health. Consistent with the growing recognition of the fundamental importance of work life and its effects on the health and well-being of

employees, the American Psychological Association (APA) introduced the *Journal of Occupational Health Psychology* (in 1995) to provide researchers with an outlet dedicated to employee health issues. Webster's College Dictionary (1995 Edition) has defined occupational health as an employee's soundness of body and mind resulting from the conditions of his/her principal work (cited in Kinicki et al., 1996). In other words, the recognition that work can interfere with our health has begun to permeate our use of language.

For most employees in the industrialized world, work is neither overly gratifying nor stressful, as we all encounter a variety of difficulties at work including irritation, frustration, stress, depressed mood, and decreased feelings of self worth (Neff, 1985). These difficulties are a natural and inevitable part of life. Still, as Neff (1985) commented, "the individual human being is not born with the ability to work effectively any more than he is born with the ability to make a successful marriage" (p. 2). Rather, such an ability is derived from a complex socialization process that involves the interaction of an individual's psychological make-up (including biological factors) with macro-cultural expectations surrounding work. For some individuals, the stressors experienced at work over a prolonged period of time may escalate into a downward spiral of chronic illness (Neff, 1985).

Recent research evidence suggests that stress, anxiety and depressed mood are becoming more prevalent in the United States and Canada (Kivimaki et al., 1997; Perez and Wilkerson, 1998). The Canadian Mental Health Association (1995) stated that chronic stress, anxiety and depression were the most common psychological problems facing

Canadians, and predicted an escalation in the prevalence of these psychological problems into the new millennium.

The reasons for the increased reports of mental disorders in the workplace are multifaceted, and may include, among other factors, the nature of work, the composition of the workforce and the blurring of gender boundaries, the structure of organizations, the pace of work and life, technological change, and the changing nature of job security (Duxbury and Higgins, 1994; Guevera and Ord, 1996; Perez and Wilkerson, 1998; Sethi et al., 1987).

With respect to the nature of work, a significant number of people in Western cultures (15%-25%) have been found to be dissatisfied with their jobs, the dull and demeaning nature of their work, the lack of control over their work, and the high degree of conflict and ambiguity in their work roles (Murphy et al., 1992). For many people work is becoming an increasingly isolating and meaningless experience, leaving individuals potentially vulnerable to high incidences of stress, anxiety, depression, and other forms of mental illness (see Bowles, 1989; Drath, 1990; Guevera and Ord, 1996).

In addition to the increasingly meaningless nature of work, and the general dissatisfaction of many individuals, substantial changes in the composition of the workforce may also be contributing to mental health problems. The "traditional" family model of the male "breadwinner" and female "homemaker" has become a relic of the past. In Canada, there are now more: (1) dual-income families, (2) working heads of single parent families, (3) working mothers, (4) men with direct responsibility for family care, and (5) working men and women responsible for the care of elderly parents (Duxbury and Higgins, 1994).

These modern day realities are forcing both men and women to renegotiate traditional gender roles and redefine the allocation of responsibilities. The result of this renegotiation may produce unique challenges for the mental health of both men and women.

In 1989, The Conference Board of Canada (MacBride-King and Paris, 1989) reported that 52% of Canadian employees experienced heightened stress or anxiety in attempting to balance the conflicting demands of work and family. Ten years later, The Conference Board of Canada found that the number of employees experiencing heightened stress and anxiety balancing work and family had climbed to 67% despite increased awareness and formal work-family policies (MacBride-King and Bachmann, 1999). In a related finding, Higgins et al. (1992) examined 22,000 Canadian employees and found that: (1) less than half of working parents were satisfied with their present lifestyle, (2) 50% of working mothers and 36% of working fathers reported high levels of stress, and (3) 40% of working mothers and 25% of working fathers reported high levels of depressed mood.

While the composition of the labour force has undergone significant change, so too has the structure of organizations and industries. The 1990's witnessed an unprecedented period of restructuring in both private and public sectors (Perez and Wilkerson, 1998). Cost cutting became the norm in all forms of organizations as employees were 'downsized' or given increased responsibilities with the same or fewer resources (Dumaine, 1994; Brief et al., 1995). One result has been that the 'fortunate' individuals that still found themselves in the workforce (often termed "survivors") often had to deal with a variety of stressors that could compromise their mental health. These stressors include survivor syndrome (the

process of coping with the loss of organizational colleagues), increased responsibilities, decreased organizational resources, and increased uncertainty from both within and outside the organization (Perez and Wilkerson, 1998).

Some of the reported declines in workplace mental health may be attributable to the fact that for many individuals the pace of their lives, including the pace expected by their organization and industry, is simply too fast for many to cope. In a 1998 poll by Polara, one out of five working Canadians believed that they currently possess all the stress that they can handle, and that any additional stress would leave them feeling overwhelmed. University of Toronto professor Mark Kingwell (as quoted in Perez and Wilkerson, 1998) attempts to explain this phenomena as follows:

> We feel we should resist speed by engaging in activities like reading or gardening or ambling, that are perforce slower. Indeed, there is an underground resistance in the culture, a theme of sundial slowness set against an overarching digital quickness of life-themes that grow more obvious and somehow more frenzied as we near the socially constructed limit of the millennium (p. 29).

Perez and Wilkerson (1998) argue that the changes in the nature and pace of today's workplace have left the workforce particularly vulnerable to mental health problems.

Technological change may also contribute to the psychological problems faced by today's workforce. The pace of technological change has raised a number of concerns in the minds of workers, including potentially lost or dramatically altered jobs (Verma and Zerbe, 1989). There is a growing number of persons becoming disenfranchised because they lack the training and/or skills to meet today's new and changing labour demands (Hage and Powers, 1992). The result is a growing number of workers who feel vulnerable to technological advances in the workplace. Some authors have labelled the uncertainty

resulting from technological change in the workplace as technostress (e.g., Sethi et al., 1987).

In addition to adapting to new technologies at work, many employees find themselves overwhelmed by current technologies (even those originally intended to simplify their working lives), including voice-mail, e-mail, fax, and Internet technologies. Such technologies have come with the price of reducing the amount of time one has to spend on primary work objectives and has led to information overload (Hage and Powers, 1992). By the year 2010, if current trends continue, it is predicted that it will take 50% of a work day just to catch-up on the information received the day before (Perez and Wilkerson, 1998). For may employees technological change is not seen as a positive force in the workplace but a challenge that forces them to adapt and often take on increased responsibilities (e.g., training, or managing competing priorities) in order to maintain their employment status (Sethi et al., 1987).

To exacerbate the problems even further, there has been a fundamental redefinition of the employment contract. The notion of having a job for life is a relic of the past and people are struggling to come to terms with what it means to have five or six "careers" in a lifetime (Dumaine, 1994; Guevera and Ord, 1996). At the heart of this redefinition of the employment contract is the lack of job security provided by employers and dropping levels of organizational commitment on the part of employees (Roskies et al., 1993; Murphy, 2000). Employees who perceive that they can easily be replaced are competing for jobs on a daily basis, and are often willing to make sacrifices such as working long hours or overtime to improve job security (Duxbury and Higgins, 1994). Fears over job security

have been linked to poor mental health by a number of researchers (see Burke, 1991; Cameron et al., 1988; Greenhalgh and Rosenbalt, 1984; Kuhnert et al., 1989). The reduced levels of job security and the changing nature of the employment contract in both the private and public sectors may have contributed to the increased levels of uncertainty and mental distress.

The relevance of this research has been argued by addressing the growing momentum in the occupational health field, and by suggesting the need to explore the potential reasons for the increased reports of psychological problems in the workplace. Yet, another fundamental question remains unanswered, 'Why study occupational health in the first place?'. Setting aside the powerful ethical and social arguments for studying occupational health (e.g., Gomez-Mejia et al., 1997), only recently have we begun to see evidence linking employee mental health to the organization's bottom line. In the past decade, research has revealed that the costs associated with occupational ill-health are staggering. In 1989, Joure et al. estimated that the price of stress related illness to U.S. firms exceeded $150B and was rising sharply. In perhaps the most comprehensive Canadian study of the costs associated with psychological problems, Perez and Wilkerson (1998) found that depression alone costs Canadian employers at least $6B a year in sick pay and lost productivity. In their study, they reported that 14% of worker absenteeism in 1997 could be attributed to mental illness. In addition, 26% of respondents had taken time off work for mental or emotional problems, compared with 20% who were absent due to physical illness or injury. Their study predicts that depression will be the number one cause of absenteeism over the next two decades in developed countries. In Canada, the

average rate of long-term disability claims climbed 33% per 1,000 employees between 1981 and 1994 (Perez and Wilkerson, 1998). In addition, psychiatric disorders represent 22% of all workdays lost in the developed countries of the world (Ibid). These powerful statistics suggest that it is in a company's long term self-interest to examine and rectify mental health problems at work.

Other research suggests that employers interested in their long term self-interest would be ill advised to ignore the costs and lawsuits associated with psychological disability. Perez and Wilkerson (1998, p. 306), for example, reason that it is well within an employer's grasp to keep a lid on disability claims and argue that: "Management practices can reduce mental disability or induce it. The definition of a healthy work environment in the post-deficit era means more than the absence of physical safety hazards". Other researchers have shown that employers are increasingly being held liable by the courts for stress in the workplace in both the U.S. and Canada (Thomas and Ganster, 1995). For example, Allen (1990) reported that worker's compensation claims concerning psychologically related disorders were being increasingly honoured in the U.S. court system. In other words, while ethical arguments have existed for some time that corporations have a social responsibility to take action to alleviate the psychological problems that they may contribute to creating, there is now strong empirical evidence to suggest that ignoring mental health issues in the workplace may have a dramatically negative influence on an organization's bottom line.

While much progress and momentum has been sustained over the past two decades in occupational health research, much remains to be done. Canadian studies,

specifically, are in short supply and tend to be clinically focussed (e.g., Perez and Wilkerson, 1998) or fall into the trap of using the word 'stress' as an all-encompassing variable for the study of all forms of psychological problems. Those studies that have provided the only reliable statistical information on the costs of occupationally related psychological disorders in a Canadian context are in short supply and of critical importance.

It is also crucial to differentiate between psychologically related disorders, in terms of their cost and other forms of illness. A Harvard research team lead by Dr. Christopher Murray developed a calculation to measure the global burden of disease - The Disability Adjusted Life Year (DALY) (as cited in Perez and Wilkerson, 1998). According to this somewhat controversial scale, the global burden of disease due to psychiatric conditions will increase from 10.5% to 14% in the year 2020, outpacing even cardiovascular disease. To understand how the DALY works compare two very different diseases: unipolar depression and prostate cancer. As a cause of death, prostate cancer outranks depression. Yet because it generally occurs later in life prostate cancer causes less disability over time than depression. The DALY index has important implications for where to spend money on health interventions. If mortality statistics alone were considered, a health strategist would likely overlook depression as a significant health priority. The DALY helps to confirm the seriousness of psychological illness to all societal institutions including health care and the private sector.

The seriousness of stress, anxiety and depressed mood for the individual and organization underlines the importance of this research. Canadians may be more

stressed, anxious and depressed for the reasons outlined above, but perhaps particularly due to increases in time pressures (Duxbury and Higgins, 1994). This thesis builds upon the momentum in the psychological literature, and comprehensively examines the antecedents and outcomes of stress, anxiety and depressed mood. The results from this research can be used by employees, employers, academics, mental health practitioners, and public policy makers.

3. Research Objectives

The study has seven primary objectives:

1. To estimate the prevalence of employees experiencing high levels of:
a) stress, b) anxiety, and c) depressed mood

By gaining an understanding of the proportion of the sample struggling with high stress, anxiety or depressed mood, employers, policy makers and health care practitioners should develop much needed insights into the prevalence of workplace mental health problems in Canada. Such figures are needed in order to justify the costs of intervention. Presently, public and private policy and decision makers have very little quantitative information on the prevalence of psychological problems in the working population, and thus little incentive to address the problem of workplace stress and employee well-being. Future research, policy making and intervention attempts are all reliant on valid assessments of the prevalence of mental health problems in Canadian organizations.

2. To determine the degree of association, if any, between stress, anxiety and depressed mood.

The psychological literature suggests that stress, anxiety and depressed mood are not necessarily independent variables (see Kendall and Watson, 1989). That is, researchers have found strong interrelationships between these three conditions (e.g., Billings and Moos, 1985). This study will determine the extent to which stress, anxiety and depressed mood are correlated in the work environment. A richer understanding of the relationship between these three variables will serve to strengthen the organizational research on work stress, which has, to some extent, subsumed the variables of anxiety and depressed mood in previous empirical studies of stress.

3. To identify the antecedents that are associated with high levels of stress, anxiety and depressed mood.

Employees report high levels of stress, anxiety and depressed mood for a variety of reasons. Biological predispositions, socialization and psychological make-up all contribute to how we cognitively react to events in our environments (Peeters et al., 1995). Although some employees may be predisposed to high levels of stress, anxiety and depressed mood, understanding the dynamic between organizational stressors and individuals responses remains a field worthy of study. Individual personality characteristics (e.g., perceived control, positive/negative affect, etc.)(see Hurrell and Murphy, 1991; Mossholder et al., 1994), and organizational factors (e.g., organizational climate, support, expectations, etc.)(see Thompson et al., 1996) may interactively contribute to the onset of stress, anxiety or depressed mood, or alternatively, to one's resiliency to these conditions. The interface between the individual and the organization may present challenges to the mental health of employees, as work and family conflict, and role overload have been found to be important predictors of employee mental health (see Kossek and Ozeki, 1998). By gaining a better understanding of the antecedents contributing to stress, anxiety or depressed mood more appropriate and focussed intervention strategies could be developed to reduce the incidences of these forms of psychological distress.

4. To determine the individual and organizational consequences associated with high levels of stress, anxiety and depressed mood in the workplace.

While some degree of stress, anxiety and depressed mood is an expected part of everyday life, sustained periods of high stress, anxiety and depressed mood can result in

serious personal and organizational consequences (Perez and Wilkerson, 1998). Psychological studies of the human consequences associated with stress, anxiety and depressed mood have left little doubt of the profound personal impacts of these conditions (see Beehr and Newman, 1978; Bourne, 1990; McGrath et al., 1990; Smith & Siwolop, 1988), yet organizational research into the affects of mental illness on productivity and performance is comparatively sparse. This study was designed to help fill this gap by providing reliable quantitative information linking employee mental health to organizational outcomes.

> 5. To identify what coping strategies are utilized by employees to deal with: a) stress, b) anxiety, and c) depressed mood.

A tremendous body of literature exists on how individuals cope with stress, anxiety and depressed mood (e.g., Billings and Moos, 1984, 1985; Blake, 1994; Cooper and Payne, 1988; Folkman et al., 1984; Kleinke, 1988; Lazarus and Folkman, 1984). However, considerably less research has examined coping strategies specific to the workplace. This study identifies what coping strategies are used most frequently by employees to deal with stress, anxiety and depressed mood.

> 6. To develop a structural equation model of the key antecedents and outcomes associated with stress, anxiety and depressed mood.

At present the employee well-being literature lacks an integrated model of employee mental health (Kinicki et al., 1996). A review of the literature revealed that only a small portion of employee health research has employed structural equation modelling (or LISREL type modelling) to help explain the intricate relationship between individual psychological variables and organizational factors. Kinicki et al. (1996) argue that "a full

understanding of worker's health is impossible until investigators understand the links among multiple health outcomes" (p. 210). This study develops such a model, thus providing a more comprehensive understanding of the relationships amongst antecedents and outcomes of stress, anxiety and depressed mood.

7. To comprehensively examine the role of gender on the above six research objectives, while controlling for the effect of job type.

While little is known about the complex interrelationships between stress, anxiety and depressed mood, and organizational influences and outcomes, even less is known about gender differences within these relationships. An examination of gender in employee mental health that incorporates the strong theoretical contributions available from various academic disciplines is long overdue. Men and women face a very different set of constraints and challenges in today's working world (Barnes and Maple, 1992), making an examination of gender and employee mental health a logical and important area of study. This study sheds light on gender differences with respect to: vulnerability to stress, anxiety and depressed mood, the individual and organizational antecedents and consequences of stress, anxiety and depressed mood, and coping strategies. Gender differences were examined while controlling for the effect of job type, as an employee's status in an organization may be an important moderating variable in their susceptibility to psychological problems (Duxbury and Higgins, 1994). Further rationale for examining gender differences while controlling for job type comes from the fact that job type is often used as a surrogate measure for socio-economic status, education and income (Duxbury and Higgins, 1994).

4. Development of the Conceptual Framework

One of the primary objectives of this study is to model the key antecedents and outcomes associated with stress, anxiety and depressed mood. This objective was designed to fill a void in the occupational health literature: the lack of an overall model of employee mental health. Kinicki et al. (1996) argue that the literature lacks an overall model of occupational health, and what we do have is a fragmented picture of a set of constructs that appear to play a significant role in occupational health or are affected by occupational health outcomes. This fragmentation is due, in part, to the numerous academic disciplines from which occupational health studies are drawn. Isolated pieces of information yield more value when they are assimilated into a coherent whole, but occupational health research is still searching for an overarching framework. Scheck et al. (1995) argue that although research clearly documents the negative effects of stress, we lack a comprehensive model of occupational health largely because previous proposed models of stress (e.g., Bhagat, 1983; Matteson and Ivancevich, 1979) were broad conceptualizations lacking the specificity needed to understand the intricate relationships between variables.

The chapter is divided into three parts: the classic process models, the structural equation models, and the development of the model for use in this thesis. In the first part, the classic process models of stress are reviewed. The organizational stress literature has a rich history, and the commonalities and important relationships within the classic process models of stress are reviewed. This is followed by a discussion of the state of structural equation modelling in employee well-being research, and a review of the few structural

equation models involving employee mental health. Finally, the conceptual model for this

thesis is developed using the strengths and lessons learned from the classic models and

the limitations of previous structural equation models.

4.1 The Classic Process Models of Stress

This section discusses the major process models of stress (and in some cases

"occupational health") that are considered benchmarks in the literature.

4.1.1 Beehr and Newman's (1978) General (Facet) Model

One of the earliest models of the stress process was developed by Beehr and

Newman (1978). The authors of that study stressed that little mention had been made of

employee health in the industrial/organizational psychology prior to 1978, and then created

a model that would have a strong influence on the field. Beehr and Newman (1978)

modelled occupational stress into five facet categories: (1) antecedents (environmental

and personal), (2) the stress process itself (although cognitive processes were given only

passing attention), (3) consequences (human and organizational), (4) adaptive responses,

and (5) the factor of time (see Figure 1). The authors listed 162 specific facets that they

hypothesized to impact upon the stress relationship, of which only 24 had been empirically

studied in some form.

A few lessons can be drawn from this early conceptualization of stress. First, we

can see the importance of dividing variable categories into antecedents and outcomes

while accounting for a 'stress process' that values individual differences in cognition and

personality. This lesson was later supported by the transactional model proposed by

Lazarus and Folkman (1984) which places great emphasis on the interaction between the

person and the environment. Second, the study serves as an important reminder of the number of variables that may be relevant when modelling psychological forms of distress (e.g., adaptive responses). Third, the authors made an eloquent argument that it is critical in the facet design of a study to include all the facets one considers relevant to the domain (as long as sufficient theoretical evidence existed from other fields to suggest facet relevance), regardless of whether the facets involved had ever been considered in stress research. In other words, Beehr and Newman's (1978) work emphasizes the importance of considering facets from multiple disciplines in a model of stress. Such a line of argumentation is consistent with the previous stress research of Runkel and McGrath (1972) who argued that the meaning of outcome variables is enriched if the outcomes are assessed in light of facets conceived as relevant but which remain as yet unexplored.

Figure 1

Beehr and Newman's (1978) General Model of Stress
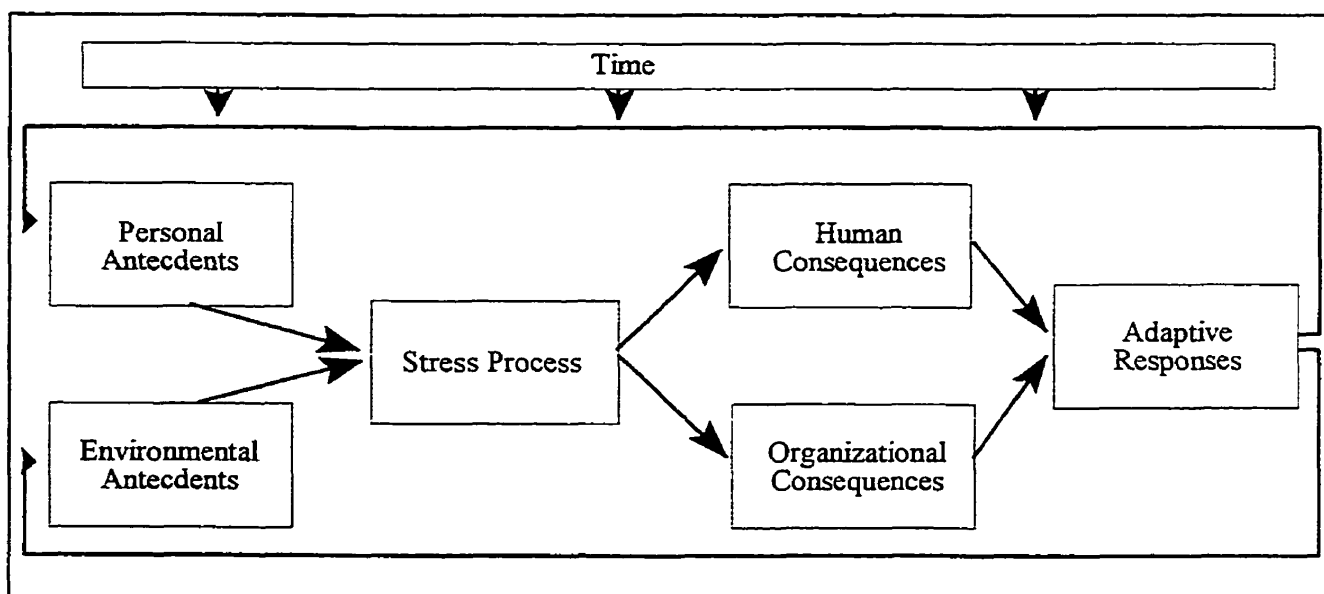
4.1.2 Matteson and Ivancevich's (1979) Model for Organizational Stress Research

In the same time frame as Beehr and Newman's (1978) research, Matteson and Ivancevich (1979) created the first model which linked work stress to physical health outcomes. The authors of that study expressed the difficulties they encountered in integrating the medical and organizational research literatures as they studied the impact of stress on coronary heart disease. These difficulties led the authors to set out a general rule that "any joint medical/behavioural stress model must include certain variables that are an integral part of the psychophysiological stress process" (Matteson and Ivancevich, 1979, p. 349). The authors believed that these key factors should include a) antecedents to the stress process, b) the level of perceived stress, c) the effects of the stress (or outcomes), and d) the results of those outcomes (consequences). The model proposed by Matteson and Ivancevich (1979) is reproduced in Figure 2.

Figure 2

Matteson and Ivancevich's (1979) Stress Model
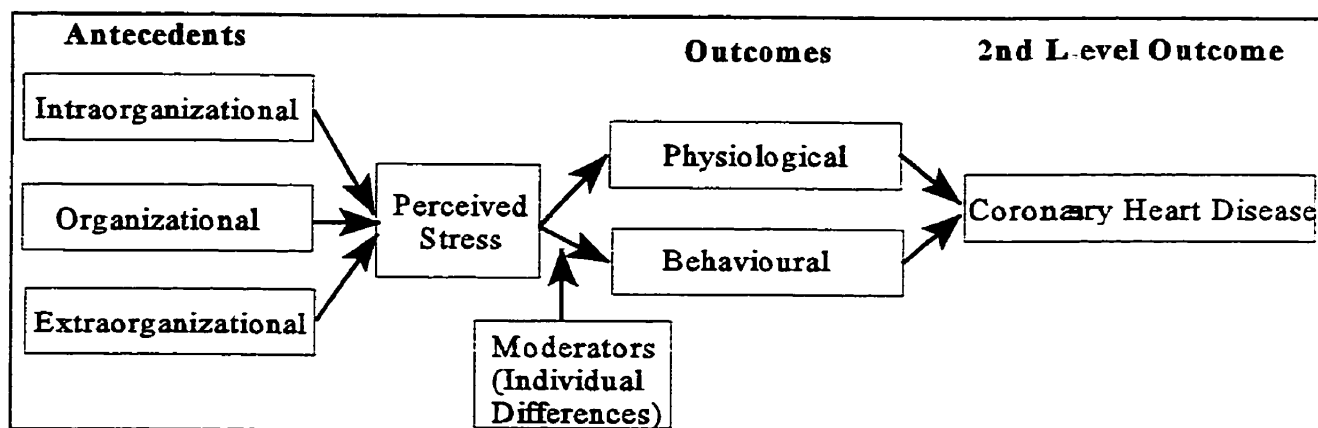
Although the model was not tested, we can again see the pattern of antecedents and outcomes, and for the first time the introduction of moderating variables. The authors argued that the state of knowledge concerning moderating variables was poor, and cautioned that "the moderators selected for inclusion [in their model] must be regarded as highly tentative" (Matteson and Ivancevich, 1979, p. 349). The moderating variables chosen for inclusion in their model included cognitive/affective differences and demographic attributes.

The model developed by Matteson and Ivancevich (1979) played an important role in future studies as it marked one of the earliest and most thorough reviews of the medical literature within a management journal. By exploring a topic traditionally left to the medical sciences (coronary heart disease), the authors set the stage for future employee well-being research that would incorporate medical and psychological literatures.

4.1.3 Karasek's (1979) Demand-Control (or Job-Strain) Model

At this same period of time, Karasek (1979) developed his Demand-Control (or Job-Strain) model (see Figure 3). It is important to note that while Karasek (1979) defined job demands in terms of workload, this variable has been operationalized in other studies in terms of time pressure and role conflict (Karasek, 1985). In Karasek's (1979) model, job control, or decision latitude, refers to the person's ability to control his/her own work activities. According to the Demand-Control model, having decision latitude will reduce a worker's stress and increase learning. Karasek (1979) argued that employees working in high strain jobs (high demands, low control) experience the poorest levels of well-being. Karasek used the buffer hypothesis which argues that control (operationalized in his model

as decision latitude) can moderate the negative effects of high demands on well-being.

Figure 3

Karasek's (1979) Demand-Control Model
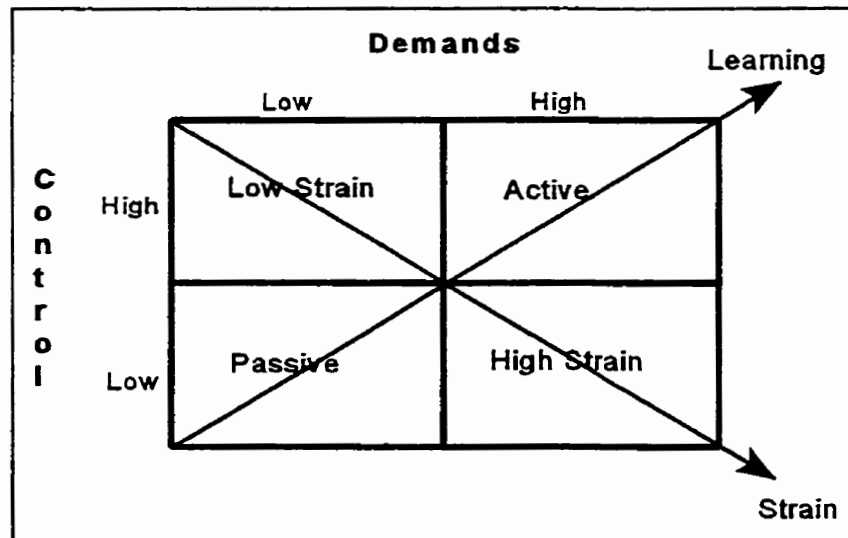
Over the years it has been argued that Karasek's (1979) Demand-Control model

was too narrow and needed to be expanded to differentiate between the effects of different

types of control (e.g., Barker, 1993). Other researchers felt that the model needed to be

expanded to include other antecedent factors (besides job demands) (Mutaner and

O'Campo, 1993). Nevertheless, future research was strongly influenced by the idea that

control is believed to buffer the potentially negative effects of high demands on well-being

(Karasek, 1979).

4.1.4 Johnson and Hall's (1988) Demand-Control-Support Model

Nearly a decade after Karasek's (1979) much cited model, Johnson and Hall (1988)

introduced the Demand-Control-Support Model. This model adds the dimension of social

support/isolation to Karasek's (1979) model. In the Demand-Control-Support Model a

worker is believed to experience the poorest levels of well-being in an "iso-strain" job (one characterized by high demands, low control, and low social support). The buffer hypothesis in this model states that social support can moderate the negative impact of strain on well-being.

Johnson and Hall's (1988) Demand-Control-Support Model added the critical component of social support into the demand-control equation. Johnson and Hall's (1988) model was tested in a cross-sectional, random sample of the Swedish working population, where it was found that the modifying effect of work control on job demands (Karasek's (1979) buffer hypothesis) was evident only when social support from coworkers was present.

Many authors have attempted to validate the Demand-Control (and Support) models with varying degrees of success (e.g., Schnall et al., 1994; Alfredsson et al., 1985; Hammer et al., 1994). Van Der Doef and Maes (1999) reviewed sixty-three studies from 1979 to 1997 which examined the Demand-Control (and Support) models. The authors concluded that considerable support could be found for the hypothesis that high demands and low control produce high strain. However, the moderating effects of control and social support on strain have yielded inconsistent findings (Van Der Doef and Maes, 1999).

One explanation for the inconsistency of the results involves serious theoretical and methodological problems in the study's under review. For example, many empirical studies have failed to indicate whether negative outcomes are the results of additive or interactive effects of demands, control and social support (Kristensen, 1995). Thus, while twenty years of research has isolated demands, control and social support as critical

variables in studying work stress, the literature still lacks a detailed understanding of how these three variables interact.

4.1.5 The Michigan Framework

Perhaps one of the most widely known teams of stress researchers were housed at the University of Michigan's Institute for Social Research in the late 1970's and 1980's. This group of researchers headed by James House developed the 'Michigan Framework', and argued that the different aspects that contribute to stress should be evaluated separately to determine what aspects (individual, environmental, organizational or social) of a construct are important under what conditions (House, 1981). The Michigan Framework has been heavily cited and used to examine the relationship between key psychosocial factors, work stress and health outcomes (e.g., Israel et al., 1989; Kinicki et al., 1996). The Michigan Framework's Stress Paradigm is presented in Figure 4.

Figure 4

The Michigan Framework
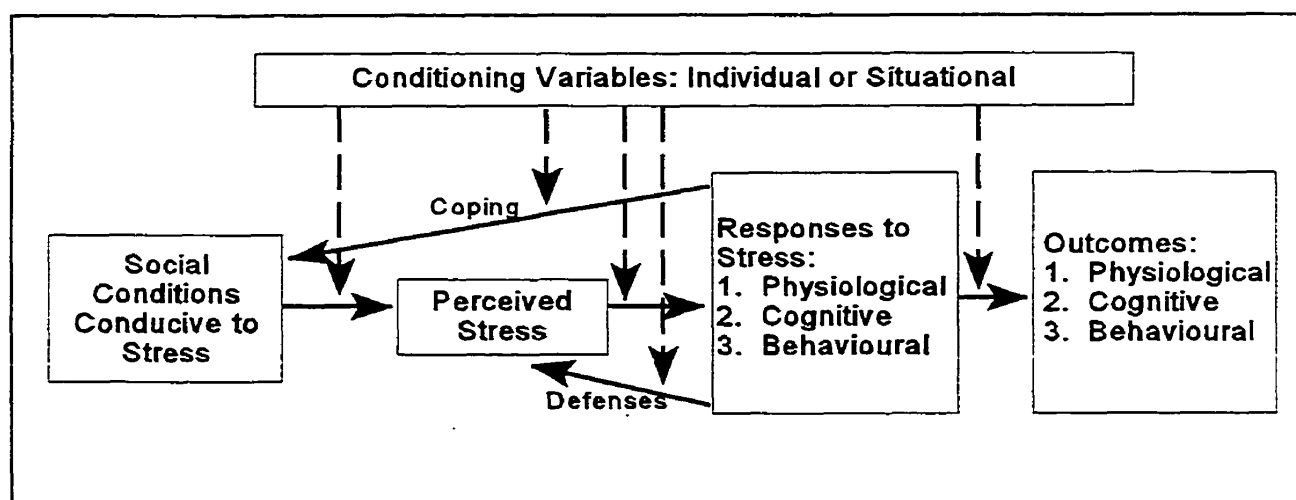
House (1981, p. 7) states that his Stress Paradigm hypothesizes that "potentially stressful social conditions ultimately produce enduring health outcomes (e.g., mental and physical illness) only if these conditions are perceived as stressful and responded to in a manner conducive to the disease". The Michigan Framework (see House, 1980, 1981) provided far more depth to the study of stress than previous models. For example, the concept of defence mechanisms, coping styles, and feedback loops throughout the model provided a fresh and more complex view of the stress phenomenon. House (1980, p. 7), however, conceded that despite the complexities associated with his model, the team of Michigan researchers were "theoretically and methodologically least prepared to consider immediate responses to perceived stress (i.e., processes of coping and defense)". Despite the inability to test these items of the model, their inclusion would forever change the nature of stress research, as the Michigan Framework became well known for conceptualizing the stress process as extremely complex, and involving intricate relationships, "... about which we know very little" (House, 1980, p.8).

While Karasek's Demand-Control Model has been argued to be too narrow in its focus, the 'Michigan Framework' has been argued to be too broad in its conceptualizations of the stress process (Karasek and Theorell, 1990). There is on-going debate over whether future stress research should be limited in scope, and in the process learn more detail about the intricate relationships between stressors and outcomes, or broaden its scope to include variables from other relevant fields of study that have received scant organizational research attention.

4.1.6 Baker, Israel and Schurman's (1996) Integrated Model of Stress

In attempting to achieve some form of balance between Karasek's Demand-Control model and the Michigan Framework, Baker et al. (1996) tested a model "in a way which builds upon the strengths and overcomes the limitations of each" (p. 1145). The model proposed by Baker et al. (1996) is reproduced in Figure 5.

Figure 5

Baker, Israel and Schurman's (1996) Integrated Model
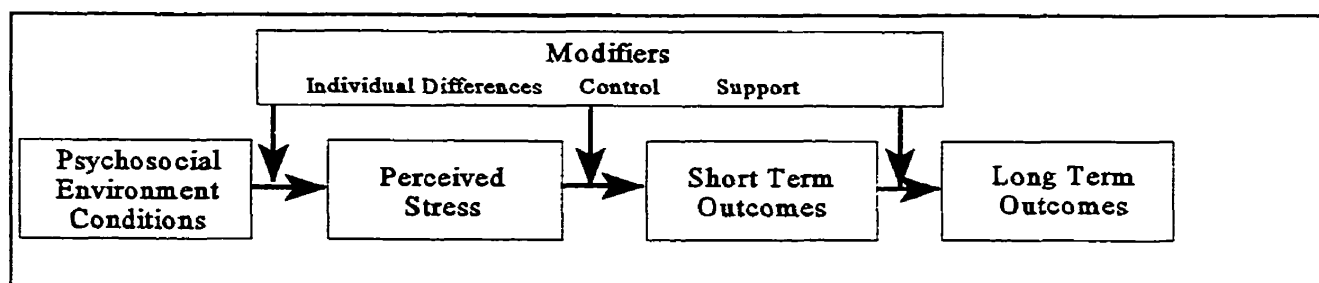
In attempting to glean the strengths from both the Demand-Control and Michigan Framework models Baker and her colleagues needed to take into account the weaknesses and criticisms of both models. The Demand-Control model had narrowed the focus of inquiry to work demands and degree of control. This narrowing of the focus of inquiry, which has helped to shed valuable light on this intricate relationship, has also been a source of criticism for the model (see Kristensen, 1985). It has been argued that it is important to expand upon the definition of demands and control and differentiate the effects of different types of demands and control on well-being (Mutaner and O'Campo, 1993; Landsbergis et al., 1993). The Michigan Framework suggests that different variables (e.g., social support, defences, coping, etc.) and different types of demand and

control be evaluated simultaneously to determine what aspects of a construct (i.e., individual, environmental, organizational, or social) are important under what conditions (House, 1981).

Baker and her colleagues' (1996) Integrated Model addresses the criticisms of both previous models in a number of ways. First, different types of stressors and controls were tested separately. Additionally, the level of the organization at which control was exerted was tested. Finally, the role of two kinds of support (both affective and instrumental) from both coworkers and supervisors was examined. Defense processes and coping strategies are eliminated from the model altogether, consistent with the logic of Karasek and Theorell (1990) that such processes are not absolutely critical in understanding the stress process itself. Therefore, Baker et al.'s (1996) Integrated Model is much more detailed than the Demand-Control model, but also more focussed than the Michigan Framework.

Finally, it is important to note that despite important refinements, the manner in which stress has been modelled has not changed very much over the past twenty years (i.e., the conceptualization used by Beehr and Newman (1978) is essentially the same as that used by Baker et al. (1996)). In other words the stress process has been traditionally studied in relation to antecedent factors (stressors) that under particular conditions (moderating variables) can result in poor mental and physical health (outcomes).

4.1.7 Structural Equation Modelling and Employee Health

Structural equation models allow for the systematic evaluation of causal relationships. In the occupational health literature there is a fundamental need for the development of more causal models in order to better understand the intricate

relationships involved in employee mental health research. An evaluation of employee mental health models appearing in the occupational health literature since 1990 (performed for this study), revealed that only 14% of all articles involving aspects of occupational health used causal analysis to test theoretical relationships. Only three studies, Cooper and Payne (1992), Rahim and Psenicka (1996) and Babin and Boles (1998) were identified as using causal modelling techniques to examine the antecedents and outcomes of stress. Neither Cooper and Payne (1992) nor Babin and Boles (1998) models included psychological or psychiatric factors. This omission makes them less relevant for review in this study. The study by Rahim and Psenicka (1996) provides the closest match to the current study's objectives and is reviewed in some detail in the section below.

4.1.7.1 Rahim and Psenicka's Job Stress (1996) Model

Rahim and Psenicka (1996) strongly argued that not enough researchers were performing LISREL-type modelling to test specific hypotheses and overall models regarding employee health. The authors went on to say that the use of causal modelling techniques was important to gain insight into specific causal relationships in the stress relationship, even if this meant limiting the number of variables examined. Rahim and Psenicka's (1996) model examined (1) the effects of job stress on psychiatric symptomatology and (2) the impact of perceived control and social support on the relationship between job stress and psychiatric symptoms using LISREL. Their causal model is reproduced in Figure 6.

Figure 6

Rahim and Psenicka's (1996) Job Stress Model
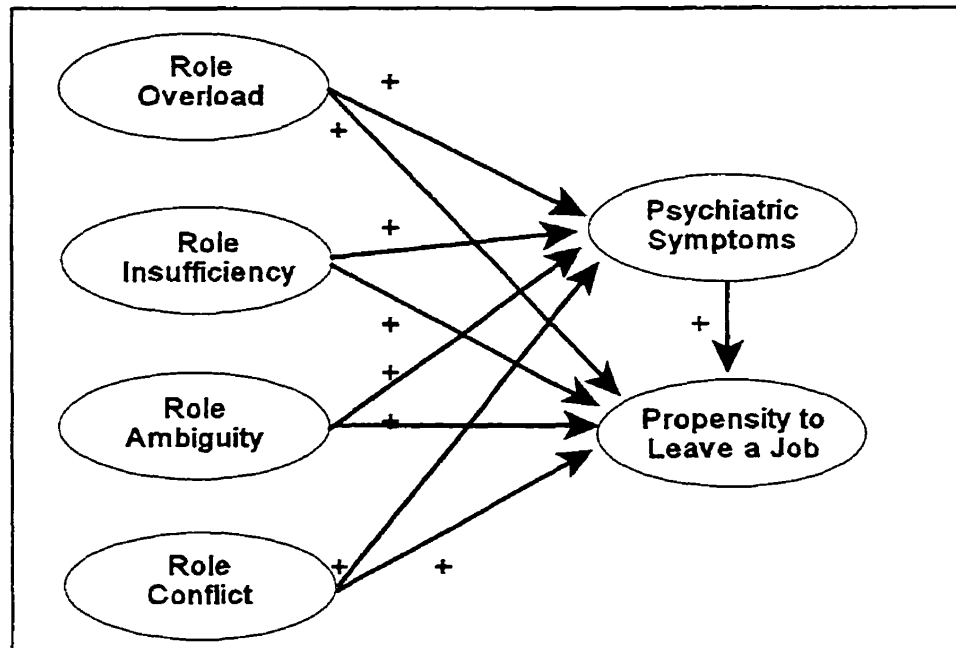
The authors conceptualized job stress as consisting of four dimensions: role overload, role insufficiency, role ambiguity and role conflict. This strategy has not been widely used, and while job stress does sometimes result from a poor person-environment fit (Rahim and Psenicka's (1996) argument for conceptualizing job stress as four dimensions), these four dimensions have previously been treated as antecedents to stress (see McLean, 1974; Osipow and Spokane, 1987), not stress itself. Despite this potential flaw in the conceptualization of stress, the study yielded some interesting results concerning the relationships of these four antecedent factors on psychiatric symptomatology and propensity to leave a job.

The model was tested using 526 members from the Chamber of Commerce of a southern U.S. state. The authors found that role overload had the strongest positive influence on psychiatric symptoms, while role insufficiency, ambiguity and conflict more strongly influenced propensity to leave a job. While not included in their causal model, Rahim and Psenicka (1996) found that the moderating effects of perceived control on the relationships of stress variables to psychiatric symptoms and propensity to leave a job were significant, while similar moderating effects for social support were not.

The study reinforces the importance of examining role overload as an antecedent factor to mental health outcomes and also builds upon previous research regarding the importance of including perceived control in mental health research (e.g., Karasek and Theorell, 1990). Unfortunately, the study does little to help the debate over the importance of social support as a moderating influence on the stress relationship.

While the findings themselves were important, Rahim and Psenicka's study (1996) provides one of very few examples of structural equation models being used to test key components of the stress relationship. Rahim and Psenicka's (1996) study provided many benefits, but we must also learn from its limitations. The authors failed to heed the warnings of earlier stress researchers and did not differentiate between types of social support, and this omission may have led to the result that social support was not found to be a significant moderating variable. However, perhaps the most glaring limitation of Rahim and Psenicka's (1996) study was the lumping of psychiatric symptomatology into a single 29 item construct. The psychiatric symptoms that the researchers purported to measure included (1) cognitive disturbance (difficulty concentrating or remembering

things), (2) anxiety, (3) depression, and (4) anger (frequency of losing one's temper, becoming easily upset about relatively unimportant things). A causal model including all four of these conditions in a stress paradigm would have been a first in the literature. By clustering these important variable distinctions into one variable the authors made an error, that has been perpetuated many times in the literature: treating all psychiatric symptomatology as if they were the same. Thus, their results become less meaningful as the reader is left to guess what aspects of psychiatric symptomatology were significantly related to job stress, and similarly, what symptoms were most likely to be moderated by perceived control or social support.

This dissertation attempts to rectify these problems by examining job stress, global stress, anxiety and depressed mood, as the distinct psychological phenomena that they have proven to be. A comprehensive evaluation of stress, anxiety and depressed mood should help us to uncover the intricate relationships between these three constructs while also being able to separate out antecedents and consequences that can be associated with each psychological condition.

4.2 Conceptual Framework

At the core of this study is the goal of determining what factors, both individual and organizational, may be contributing to psychological problems in the workplace. In addition, we wish to uncover the consequences associated with psychological problems for both organizations and individuals. While the vast majority of the organizational literature on employee well-being has focussed on the often ill-defined and measured construct of stress, our study expands the scope of psychological problems to include

anxiety and depressed mood, while differentiating job stress from global levels of stress (or life stress). The inclusion of anxiety and depressed mood has intuitive appeal, for stress, anxiety and depressed mood are the three most common psychological problems facing Canadians (CMHA, 1995), and as such are deserving of research attention in the organizational domain. The addition of anxiety and depressed mood should also allow us to understand psychological phenomena more clearly than a study that focuses solely on the often ill-defined construct of stress.

In developing the conceptual framework for this study, the organizational and psychological literatures were reviewed in order to determine what variables had emerged as important factors in previous studies of employee stress and mental health. The stress process models and structural equation models involving employee mental health were then used to determine how the stress process (and by extension, anxiety and depressed mood), had previously been conceptualized. Armed with this information a conceptual model (see Figure 7) was developed for this thesis.

The creation of an a-priori model makes an important theoretical contribution as it pulls together information and relationships concerning occupational health from diverse academic fields. The variables included in this model represent the relationships that are believed to be the most important for a comprehensive study of occupational health. In developing a study of occupational health one must balance the desire to include a large number of variables, with the need to keep the study focussed. Speaking of the double bind faced by researchers in trying not to be too broad or too narrow in their theoretical development, Sutton and Staw (1995) stated,

Providing a broad theory, in which a given phenomena is located in a network of interorganizational or cultural influences will usually lead to complaints that the author did not measure all the variables in his/her model. Providing a deep theory, in which intervening variables mechanisms are spelled out in graphic detail, may likewise lead to objections that only the antecedents and consequences of the model are measured. Reviewers will typically say, 'If a contextual variable was so important why wasn't it operationalized?' (p. 380-381).

This study has tried to balance the desire to locate psychological phenomena within the realm of individual and organizational influences while trying to ensure that the most important variables could be operationalized and examined in some detail. The conceptual framework is shown in Figure 7.

Figure 7

A-Priori Model of Employee Mental Health

Antecedents

Individual

Personality:
Perceived Control
Pos./Neg. Affectivity
Attitudes:
Job Security
Mobility
Underemployment
Work Involvement
Job Stress

Individual-Org. Interface

Role Overload
Work to Family Conflict
Family to Work Conflcit

Organizational

Organizational Culture
Organizational Support
Flexibility of Work
Work Expectations

Psychological Distress (Outcomes)

Stress

Anxiety

Depressed Mood

Moderators

Coping Strategies   Supervisor Support

Consequences

Individual

Life Satisfaction
Job Satisfaction
Physical Health
Burnout

Organizational

Perceived Productivity
Org. Commitment
Absenteeism

The a-priori model of employee mental health is an extension of the logic of Holt (1983), that under certain conditions (antecedent factors) people experience a certain level of psychological distress, which in turn influences their own sense of well-being as well as organizational effectiveness. The model also incorporates the ideas proposed by House (1981), that the degree of psychological distress may, in turn, be moderated by the coping strategies utilized by the employee and the degree of social support available to the employee.

The model developed for this thesis is similar to those found in the literature in that it consists of four key components: antecedents to psychological distress, psychological distress itself (as measured by stress, anxiety and depressed mood), consequences of psychological distress and moderating factors. The grouping of antecedent and consequence factors is also consistent with previous models, while the addition of individual-organizational interface antecedent factors is new (but reflects the demographic realities faced by many Canadians), and is consistent with work-family research (Duxbury and Higgins, 1994).

In terms of antecedents, individual, individual-organizational interface, and organizational factors are proposed to influence levels of psychological distress. The individual factors included in this conceptualization are divided into personality attributes (perceived control and positive/negative affectivity) and work attitudes (perceptions of job security, mobility, underemployment, work involvement/meaning, and job stress). The individual-organizational interface antecedents that are examined include role overload, work to family conflict, and family to work conflict. The organizational antecedents that are

considered in our study included organizational climate, organizational support, the flexibility of the work environment and work expectations.

The forms of psychological distress that form the critical component of the a-priori model are stress, anxiety and depressed mood. The interrelationships among these constructs as well as the links between each of the three forms of psychological distress and the antecedents and outcomes are of primary importance to the study.

The model also hypothesizes that psychological distress will have an influence on both individual and organizational outcomes. The model includes four individual outcomes (life satisfaction, job satisfaction, physical health, and burnout) and three organizational outcomes (employee perceptions of productivity, organizational commitment, and absenteeism).

Finally, the model proposes that the degree of psychological distress may be moderated by the number of coping resources available to an individual and the types of coping strategies utilized. The model operationalized coping as the coping mechanisms utilized by employees. The degree of social support available to the employee was also predicted to be an important moderating influence on levels of psychological distress and was operationalized with the assessment of supervisor support. This study examines the influence of coping strategies and supervisor support on levels of stress, anxiety and depressed mood.

The literature justifying the inclusion of each of the constructs and relationships in the a-priori model is provided in the literature review.

5. Literature Review

The literature review is divided into six sub-sections. First, the relevance of the study will be discussed within the context of an imperative need for well-being research that combines knowledge from both the psychological and organizational literatures. Second, the three independent variables to be examined in this thesis: stress, anxiety and depressed mood, will each be introduced and distinguished from one another. The interrelationships between stress, anxiety and depressed mood found in previous research will also be outlined, thus highlighting the logic behind the inclusion of all three variables in this research. Third, the individual and organizational antecedents of stress, anxiety and depressed mood to be examined in this study will be defined, and the relevant literature from the psychological and organizational literatures will be presented. Fourth, the major individual and organizational consequences associated with stress, anxiety and depressed mood, as identified in the psychological and organizational literature, will be discussed. The fifth section of the review examines the coping literature, as it pertains to individuals attempting to deal with stress, anxiety and depressed mood. Finally, the literature on gender and well-being will be reviewed in order to provide a clear understanding of the controversies surrounding potential differences between men and women with respect to vulnerability to mental illness, work and non-work roles, and coping strategies.

5.1 The Need for An Integrated Approach to Employee Well-Being Research

With the predominant role that work plays in our daily lives we might reasonably have expected that advances in work psychology would have parallelled the psychological

and psychiatric advances of this century (Neff, 1985). However, the area of work and well-being has been, until quite recently, a much neglected field. Until the mid 1980's, employment related health issues were framed and restricted primarily to occupational health and safety concerns (e.g., accidents, alcoholism, substance abuse, etc.) (CMHA, 1984). Chronic stress, anxiety and depression have traditionally been treated and studied outside the workplace and considered emotional breakdowns calling for relatively mechanistic responses (e.g., psychological counselling, drug therapy).

The workplace itself has been largely ignored as a potential contributor to mental health or dysfunction. The logic behind excluding the workplace as a primary cause of mental illness is argued to have arisen from the mainstream medical model that views an impairment in the ability to work as a consequence of a deeper set of psychological problems that are best treated by the medical community (Neff, 1985). From this perspective high levels of stress, anxiety and depressed mood reported at work are all considered to be evidence of workplace maladjustment, and treated as symptoms of a host of well defined and understood psychological illnesses. In fact, difficulties coping with work are a critical symptom used by the mainstream medical community in determining the severity of mental illness (see American Psychiatric Association, 1980). As Neff (1985, p. 215) stated, "the field of psychiatric rehabilitation would not exist at all if it had not been observed that one of life's domains often disrupted by a mental illness is the domain of adjustment to work".

Although strong evidence suggests that individuals may be biologically predisposed to chronic stress, anxiety and depression (see Bourne, 1990; Kendall and Watson, 1989),

this study postulates that today's organizations and working environments may be contributing to, or exacerbating mental health problems. This thesis will test the belief that the workplace itself may be a contributing factor in the onset and development of psychological problems.

The notion that organizations may play a role in the mental health and stability of their employees is by no means a new idea. The pioneering work of Kornhauser (1965) focussed on the problems of mental health in industrial settings and paved the way for future occupational health research. In 1978, Beehr and Newman stated that "The need for an interdisciplinary approach [to occupational health research] is clear" (p. 667). This approach is consistent with the later viewpoints of Kinicki et al. (1996) and Kivimaki et al. (1997) who strongly advocate an integrated approach to employee mental health research.

Today, research into occupational health spans many different academic disciplines including organizational behaviour, organizational psychology, the sociology of work, social psychology, clinical psychology and psychiatry. A quick glance through the references section of this study provides some indication of the wide range of academic disciplines and journals that have made valuable contributions to diverse pieces of the mental health puzzle. One of the primary goals of this literature review is to provide the theoretical underpinnings from the various academic fields and combine the knowledge into a framework that can be operationalized and studied.

Since aspects of the workplace itself are known to be significantly related to forms of psychological ill-health and to also reduce productivity, it would seem logical to challenge conventional views about how to organize and manage work activities.

However, most organizations have been slow to respond to mental health issues. Often viewed as a taboo subject in the workplace, mental health has been ignored, at least in part because managers lack the requisite training to manage psychological illnesses upstream (i.e., before dysfunctional outcomes appear). As Karasek and Theorell (1990, p. 1) state,

> most of the solutions advanced to reduce stress - relaxation therapies for example, address only its symptoms. Little is done to change the source of the problem: the work organization itself. While we recognize that stress is damaging, we act as though its sources were inevitable.

This research fills a void in the occupational health literature by taking the first step toward providing managers with the necessary information to deal with psychological problems upstream. Being armed with information on the individual, individual-organizational interface, and organizational antecedents of psychological problems will allow managers to develop interventions concerning those factors that fall within their control.

5.2 Stress, Anxiety and Depressed Mood

This study focuses on stress, anxiety and depressed mood in the workplace. The reasons for including all three conditions in this research are: (1) these 'problems of living' are considered to be relatively mild, yet pervasive forms of psychological disorder, (2) strong relationships are believed to exist between the three conditions, and (3) no comprehensive study exists that simultaneously assesses the antecedents and outcomes of all three forms of psychological distress. A number of studies support the view that these three conditions are pervasive in the population. Dauer (1989) reported that a Gallup poll involving more than 200 personnel from small, mid-size, and large corporations

found that 25% of a company's workforce suffer from an anxiety disorder or a stress-related illness. A study by Major (1990), aimed at understanding the problems experienced by workers grappling with mental health issues, found that 50-60% of troubled employees have mental health problems having to do with stress, anxiety, depression, or family and relationship issues. Finally, the CMHA (1995) reported that stress, anxiety and depressed mood were the three most pervasive psychological problems facing Canadians.

5.2.1 Stress

In this study stress is conceptualized as the subjective appraisal of an environmental condition where the demands of the environment are perceived to challenge the person's ability to meet those demands. The definition of global stress used in this study is consistent with those found in other studies of general stress (e.g., Cooper and Payne, 1988; Heaney et al., 1995a). In this study, the construct of global stress has been treated as a distinctly different construct than job stress, as ample evidence exists to suggest that these two forms of stress are distinctive entities (e.g, Karasek and Theorell, 1990; Murphy et al., 1992).

Stress is a natural part of work and life and is neither inherently good or bad (Quick et al., 1992). In fact, Kahn (1983) argued that the amount of stress experienced by workers under certain conditions is actually U-shaped rather than a simple monotonic function of intensity, thus suggesting that too few work demands, for example, may be as stressful as too many.

Good stress, or eustress, is a natural stimulant that causes us to act in our work and non-work lives. Positive stressors are defined as events which "produce a state of

challenge coupled with disruptive pleasure" (Bhagat et al., 1985, p. 203). Eustress can be used on a daily basis to motivate us to meet deadlines, perform under difficult circumstances and meet the many challenges in our work and non-work lives (Quick et al., 1992). Negative stressors are defined as those events which "produce excessive and undesirable constraints or demands on the individual" (Ibid). It is negative stress that is the focus of this thesis.

Kasl and Cobb (1983) make an important point in stating that a frequently overlooked difference in stress research is the difference between stress and stressors. While stress is an appraisal or a reaction to an event, a stressor is the event itself, including how it is perceived (Ibid). This implies that whether or not an antecedent stressor is stress provoking depends, in large measure, on the perception of the individual exposed to it. Thus, variables that help explain differences in perception, including personality variables, are extremely important for understanding the cognitive processes which surround stress (Roskies et al., 1993).

Within an organizational setting, distress (or negative stress) has captured the bulk of research attention, far exceeding the quantity of research on anxiety or depressed mood. Although the quantity of stress research is staggering, considerable gaps and disagreements continue to exist in the knowledge base. Despite some recent theoretical developments in the area of stress research (e.g., Heaney et al., 1995a, 1995b, Hurrell and Murphy, 1991), the comment made by Kasl and Cobb in 1983 (p. 445) could be aptly applied to the state of the stress literature today. They stated,

> The day is yet to come when a reviewer of the stress literature is challenged because he overestimated the extent of conceptual and methodological disagreement in the stress field. The term stress continues to be used in three fundamentally different ways: (1) as an environmental condition, (2) as the (subjective) appraisal of an environmental condition, and (3) as the relationship between environmental demands and the person's ability to meet those demands. Passionate pleas for uniformity of usage or for the adoption of one particular definition go unheeded.

We wholeheartedly concur with the words of Kasl and Cobb, but also believe that the difficulties involved with the divergent usage of the word stress should not be used to unnecessarily overestimate the conceptual difficulties associated with stress. By clearly defining stress, and differentiating it from stressors, much of the conceptual difficulties involving definitions dissipate. Academic researchers must ensure that they do not overly complicate a phenomenon (stress) that a layperson may experience daily and likely understands. As Holt (1983, p. 421) stated,

> Put in common sense terms, the basic proposition of the whole field of OS (occupational stress) might be expressed thus. Some aspects of many kinds of work have bad effects on most people under certain circumstances. ... The prevalent research paradigm is stress (independent variable), produces undesirable consequences (dependent variable), under certain parametric conditions (moderator variables).

5.2.2 Anxiety

The word anxiety comes from the Latin word anxius, meaning a condition of agitation or distress (Derogatis et al., 1976). Anxiety is a common feature of most mental health problems. Lader and Marks (1971) described anxiety as a pervasive negative affect state which is present to some degree in almost all clinical syndromes and the predominant feature in some. Anxiety is characterized by a host of symptoms including shortness of breath, heart palpitations, trembling and shaking, sweating, choking, nausea or abdominal distress, numbness, dizziness or unsteadiness, feelings of detachment, hot flashes, and the fear of losing control (Bourne, 1990).

Anxiety can appear in different forms and at different levels of intensity. It ranges in severity from twinges of uneasiness and unrest to full-blown panic attacks marked by heart palpitations, disorientation and terror. For most individuals, anxiety is a natural part of life that involves periodic episodes of uneasiness and unrest often characterized by excessive worry (Bourne, 1990). But for some individuals anxiety can develop into chronic disorders. Criteria for diagnosing specific anxiety disorders have been well established by the American Psychiatric Association and are listed in the <u>Diagnostic and Statistical Manual of Mental Disorders</u> (APA, 1980). This study is focussed on identifying employees who report high levels of general anxiety.

Anxiety can be differentiated from stress in the sense that the focus of anxiety is more internal than external. While stress relies on one's reaction to the external environment, anxiety is believed to be a response to a vague, distant, or unrecognized danger (Bourne, 1990). In sum, anxiety is associated with an uncertain future oriented cognitive state in which the individual anticipates the possibility of threat or harm (Kendall and Watson, 1989).

Anxiety has received very little attention in the work environment. This study hopes to fill this void.

5.2.3 Depressed Mood

Depressed mood is a social-scientific term used to describe symptoms of depression. Depression is a clinical term referring to a long term state of general emotional dejection and withdrawal requiring the confirmatory diagnosis of a medical doctor (Craighead, 1980). In its most severe form, clinical depression afflicts at least 5%

of the population and is characterized by a pervasive sense of sadness, lethargy and worthlessness (Nolen-Hoeksema, 1991). A recent Canadian study (Perez and Wilkerson, 1998) reported that approximately 10% of Canadians suffer from depression.

In a social scientific study we cannot espouse to measure depression simply through the use of a questionnaire, and have therefore sought to avoid terminology that requires diagnostic confirmation. Depressed moods, however, are also common to everyday life. Feeling 'down', 'blue', or dejected, lacking energy, spontaneity or drive, sleeping problems, emotional detachment, and not deriving pleasure from aspects of life that had previously provided pleasure are all symptoms of a depressed mood (Headey et al., 1993).

It is important to differentiate between clinical depression and depressed moods in order to reduce the confusion created by everyday terminology. As Freden (1982, p.1) pointed out "any two individuals discussing depression are likely to find themselves at cross-purposes, simply because they are not discussing the same phenomenon". While depressed mood tends to last for a few hours, clinical depression refers exclusively to a psychological disorder which reduces individuals to a lasting state of passivity that may last for several days, weeks, months or even years. Clinical depression can make it very difficult for the depressed person to carry out his/her everyday activities, including work (Freden, 1982). In this research we are limiting our examination to depressed moods in the workplace, as an examination of clinical depression in the workplace is beyond the bounds of the present study.

The workplace, due to its potential role in producing negative events and challenges represents a rich environment for depressed mood research. Work related problems, when left unchecked, have been linked to depressive symptoms (Norman et al., 1995), and depressive reactions have been shown to follow negative events when attributed to internal factors (Abramson et al., 1978). Weiss (1990) believes that employees in "challenging work" sooner or later experience at least a brief period of depression. He argues that depression occurs when an individual loses hope of a successful outcome and believes the fault lies in themselves, making continued mobilization toward the problem pointless. We concur that most individuals at work may experience periods of depressed mood, but remain sceptical of the conclusion that the nature of the job position (in terms of it's "challenge") is necessarily the underlying cause of the depressive state.

5.2.4 The Relationships Between Stress, Anxiety and Depressed Mood

Numerous authors have found that relationships exist between stress, anxiety and depressed mood. Schonfeld (1992) found that anxiety symptoms were frequently accompanied by depressive states. Similarly, Weissman et al. (1977) found that prolonged periods of stress were positively correlated with depressed moods. Greenglass and Burke (1988) found that prolonged exposure to stressful situations increased the likelihood of developing anxiety symptoms. Similarly, global stress levels have been found to be positively correlated with various indices of psychological disorders including anxiety and depressed mood (Bhagat, 1983; Dekker and Webb, 1974; Paykel, 1974; Vinokar and Selzer, 1975).

The greatest amount of literature involving correlations between stress, anxiety and depression, involves psychiatric and psychological studies designed to assess the distinctive and overlapping features of anxiety and depression (e.g., Kendall and Watson, 1989). The most basic explanation for the comorbidity of anxiety and depression is that both conditions are negative affect states involving substantial levels of subjective distress (Watson and Kendall, 1989). Although anxiety is primarily centred on the emotion of fear (usually of the future) and depression is best characterized by sadness, lethargy or grief, both of these negative affect states (fear and sadness) are themselves strongly correlated empirically (Kendall and Watson, 1989).

While there is little, if any, doubt in the psychological literature that relationships exist between stress, anxiety and depression, some authors have pointed out that these interrelationships are often vague, perhaps in part because the mental disorders toward the mild end of the spectrum (i.e., stress, anxiety and depression) are themselves difficult to measure and clinically establish (Neff, 1985). The reasons for such strong inter-correlations may also be partially explained by the numerous symptom criteria they share in the Diagnostic and Statistical Manual of Mental Disorders (APA, 1980), including restlessness, fatigue, loss of energy, difficulty concentrating and insomnia.

This study will determine the extent of comorbidity between depressed mood and stress and anxiety, while also assessing the antecedents and outcomes of depressed mood.

5.3 Individual, Individual-Organizational Interface, and Organizational Antecedents of Stress, Anxiety and Depressed Mood

The reasons or causes for the onset or perpetuation of mental conditions including stress, anxiety and depressed mood are multifaceted and include a person's biological make-up (genetic predisposition), socialization experiences, traumatic life events and cognitive processes (see Folkman et al., 1984; Headey et al., 1993). While this study recognizes the importance of biological predispositions and socialization experiences in the determination of mental health, the examination of both these sets of variables is not feasible in this study. Rather, this study focuses on the interaction between people and their environment, or more specifically, employees and their organizations. As noted previously, there is ample evidence to suggest that the interaction between individual and organizational variables play a major role in influencing well-being (Brief et al., 1993; Cochrane, 1983; Cooper and Marshall, 1976; Donovan, 1987; Gardell, 1980; Hage and Powers, 1992; Hendrix et al., 1994; Joure et al., 1989; Kahn, 1983; Kinicki et al., 1996; Kornhauser, 1965; Lindstrom, 1994; McLean, 1967; Murphy et al., 1992; Perez and Wilkerson, 1998).

In this section, the literature on individual, individual-organizational interface, and organizational antecedents of mental illness is reviewed. The individual antecedents of mental illness are drawn primarily from social psychology research and include differences in personality and work attitudes. The individual-organizational interface antecedents are drawn from the work and family literature. While the organizational antecedents come primarily from the organizational behaviour research and include characteristics of jobs

and organizational cultures that have been shown to contribute to stress or psychological problems.

5.3.1 Individual Antecedents

Two classifications of variables are included in this grouping: those that are linked to personality predispositions, and those that are associated with attitudes toward work.

5.3.1.1 Personality Antecedents

This study focuses on two aspects of individual personality predispositions that have been shown to significantly relate to mental heath: perceived control and positive and negative affectivity. The inclusion in the a-priori model of these two constructs is consistent with earlier findings that suggest certain individuals may be more susceptible to a variety of negative psychological outcomes as a result of personality predispositions (see Brown and Joy, 1985).

One critical personality variable that is omnipresent in studies of mental health is perceived control. Perceived control can be defined as the degree to which an individual possesses a generalized expectancy that rewards or outcomes in life are controlled either by the individual's own actions (high perceived control) or by external forces (low perceived control) (Rotter, 1966; Spector, 1988). There is growing evidence that suggests psychosocial factors, like the amount of control a worker perceives s/he has over his/her job has as much impact on health as biochemical factors (Perez and Wilkerson, 1998).

As noted earlier, Karasek (1979) hypothesized that work characterized by high job demands and low control or discretion would lead to high stress. In empirical research Karasek's theory seems to have gained support, as employees in high demand and low

control jobs have exhibited higher blood pressure and cortisol levels (Fox et al., 1993), and higher absenteeism and tardiness (Dwyer and Ganster, 1991). In addition, Saleh and Desai (1990) found, in a study of professional engineers, that the higher the level of perceived control, the lower the stress level of the engineer. Perceived control was also found to be more important than all sources of social support in influencing levels of stress (Cohen and Edwards, 1989).

Considerable research has been performed into the link between perceived control over a stressful event and employee health. Bandura (1988) found that the degree to which a person believes he or she is capable of controlling specific threatening situations was linked to positive measures of mental and physical health. In one of the most comprehensive studies involving perceived control in the workplace, Hurrell and Murphy's (1991) results indicated complex interactions between stressors, perceived control, job autonomy and social support in predicting psychological well-being. The interactions revealed that a high degree of perceived control, job autonomy and social support act to synergistically buffer the effects of stress and anxiety on well-being.

In sum, the perceived control studies provide compelling evidence that a high degree of perceived control may serve to buffer the impact of organizational stressors and positively influence mental health. Conversely, a low degree of perceived control may actually exacerbate or create stressors or worries that may negatively impact mental functioning.

A second personality variable crucial to the study of well-being is the construct of positive and negative (dispositional) affectivity. Dispositional affectivity reflects "the

tendency to respond to classes of environmental stimuli in a predetermined affect based manner" (Judge and Hulin, 1993, p. 391). Positive affectivity reflects one's level of positive engagement in the environment and is comprised of general happiness, joy, high energy, mental interest and alertness and determination. Negative affectivity is considered a broad distress variable combining the negative emotions of fear, nervousness, anger, guilt, contempt, disgust, sadness, loneliness and self-dissatisfaction (Kendall and Watson, 1989). Positive and negative affectivity are therefore not separate ends of a continuum but separate constructs. Individuals scoring high on a positive affectivity scale are likely to feel engaged in their environment and generally satisfied with their lives, whereas individuals who score high on negative affectivity are likely to perceive life and its components as a struggle (Kendall and Watson, 1989). Watson and Tellegan's (1985) theoretical structure of affectivity asserts that the high end of each affectivity dimension is held to represent a condition of emotional arousal and the lower end of each dimension to represent an absence of affective involvement.

Mossholder et al. (1994) commented on the growing interest in the study of affectivity in the organizational literature. The authors argued that dispositional phenomena should be considered in organizational studies that examine behaviour and attitudes (e.g., George, 1992; O'Reilly, 1991), and that emotionality, in general, has been a neglected area of study in organizational research (an argument echoed by Rafaeli and Sutton (1987)). This neglect, Mossholder et al. (1994) argue, has led to the recent wave of organizational research that incorporates personality predispositions into employee well-being research (e.g., Elliot et al., 1994; Judge and Hulin, 1993; Judge and Locke,

1993).

The model tested in this study is consistent with this new line of reasoning (i.e., it is based on the premise that positive and negative affectivity are important in studies of mental health in the workplace as they allow researchers to uncover and isolate respondent personality predispositions).

5.3.1.2 Work Attitudes

In addition to personality variables, there are a number of work attitudes that have been correlated with employee well-being. The following work attitudes are represented in the a-priori model: job security, mobility, underemployment, work involvement/meaning, and job stress. The rationale for the inclusion of each variable is provided below.

The variable receiving the most research attention of late for its impact on well-being is arguably job security. With the current trends toward downsizing and restructuring, studies into the effects of job insecurity on mental health have begun to proliferate. In addition to downsizing, plant closures, foreign competition, corporate mergers and skill obsolescence have all been factors cited as adversely affecting perceptions of job security (Cameron et al., 1988). Greenhalgh and Rosenblatt's (1984) classic article argued that the threat of job loss is transmitted to the individual by means of intended or unintended cues from the organization and through informal means including rumours. The authors go on to point out that the individual may react to these cues with increased stress, decreased effort expenditure at work, increased resistance to change, and a greater likelihood of leaving the organization.

Kuhnert et al. (1989) found that perceptions of job security were significantly related to increased depression symptomatology, difficulties in interpersonal relations and somatic complaints. In the same year a contradictory, and somewhat controversial study was published by Ashford et al. (1989) who reported no significant relationships between job security and employee well-being. This study cast a shadow of doubt over just how important perceptions of job security were to one's sense of health.

Since the Ashford et al. (1989) study, researchers have consistently found strong relationships between real and perceived threats to job security and physical and mental health. In studies by Burke (1991) and Kuhnert and Vance (1992), which utilized diverse samples from various industries, strong evidence was found of significant positive relationships between threats to job security and psychological distress.

One potential explanation for the discrepancy between the Ashford et al. (1988) results and subsequent studies showing significant relationships between job security and psychological distress, as suggested by Kuhnert and Vance (1992), is that the impact of job security on stress may be moderated by perceptions of job mobility (i.e., the more an employee perceives he/she can find another job with similar pay and benefits, the less likely job security will negatively influence levels of stress). Thus, Ashford et al.'s (1988) sample may have perceived themselves as highly mobile (although no data on this variable was collected) and therefore threats to job security may have been mitigated by perceptions of mobility. In this case, mobility may be seen to be a surrogate for increased perceptions of control, which, as we have already discussed, has an important relationship with employee mental health.

In an interesting and related finding, Kuhnert and Vance (1992) found that older employees reported less stress symptoms despite the fact that they believed they would be less likely than their younger counterparts to find a similar job elsewhere (i.e., believed themselves to be less mobile). Thus, older employees seem to be much more resilient to the stress of job insecurity than do their younger counterparts. Such findings require further validation, but are consistent with previous studies that have shown developmental changes in the values, needs and expectations of employees as they age (for a commentary see Pond and Geyer, 1987).

Mobility refers to the extent to which an employee perceives he/she can easily find another job with similar pay and benefits. Perceptions of mobility have been linked to increased feelings of control at work (Kuhnert and Vance, 1992), and high levels of control have been well established for their positive influence on well-being (e.g., Bandura, 1988). Thus, mobility is an important antecedent variable to examine in studies of occupational health.

Perceptions of underemployment are also important job attitudes that influence well-being. Underemployment refers to employees working in jobs that do not fully utilize their skills or training, and do not provide opportunities for personal growth or satisfaction (O'Brien, 1986). In Psychology of Work and Unemployment, O'Brien (1986) equates the effects of unemployment with the stresses of chronic underemployment. The psychological effects of underemployment have been argued to be similar to those experienced by unemployed persons and include high stress, helplessness (and associated feelings of depression) and fatalism (O'Brien, 1986). O'Brien (1986) makes it

clear that the psychological implications of long term underemployment are severe for the working public, but he also argues that the implications of underemployment for the organization in terms of reduced motivation, productivity and efficiency are equally serious. The long term impacts of underemployment are believed to include a deterioration of the employee's self-image, decreased feelings of personal control, reduced intellectual functioning, social maladjustment and a decreased sense of well-being (Jones-Johnson and Johnson, 1992). In a study by Foegen (1990), a sample of underemployed persons were found to seek "psychological revenge" for their underemployment in the forms of increased absenteeism and restricted work effort.

Closely related to the theme of underemployment and a lack of personal gratification from work is the construct of work involvement. Work involvement represents the degree to which employees are engaged by their work, and genuinely derive meaning or pleasure from their work activities (Lodahl and Kehner, 1965). The modified version of Lodahl and Kehner's (1965) measure of work involvement used in this study assesses whether respondents "live to work" or "work to live". Living to work implies that an employee derives some personal meaning or gratification from their job (and thus score highly on work involvement) (England, 1991), while working to live implies that work provides the necessary bounty to do the other things in life that are considered more important (this view has been termed by some authors as instrumentalism) (Karlsson, 1990).

Whether an employee is involved in their work and believes their work to be meaningful have been significantly related to a number of measures of employee well-

being and job engagement (see England, 1991; Karlsson, 1990; Lodahl and Kehner, 1965). Many authors have argued that control-based, patriarchally structured organizations offer very little in the way of facilitating an environment where an employee may experience one's work as meaningful (see Bowles, 1989; Deci and Ryan, 1987; Drath, 1990; Dumaine, 1994; and Guevera and Ord, 1996). Bowles (1989) argues that although "the work organization for many, has come to be seen as the creator of meaning in a confused world where identification and commitment to organizational ethos can provide opportunities and rewards" (p. 411), the reality of most organizations is that "many people lack any sense of well-being and blame themselves for their incompetence in being unable to adjust and respond to the needs of industrialized society" (Ibid, p. 406).

In a classic article, Linsky (1969) found that the incidence of depressive disorders is higher amongst people who have adopted the success ideal (the traditional, materialistic view of success), but whose chances of fulfilling it have been blocked by social realities. Males, in particular, may be susceptible to depression if they perceive their work is meaningless, as the role of breadwinner is still strongly imbedded in male notions of success (see Dyke and Murphy, 1998; Freden, 1982).

In this study job stress is considered a separate construct from global stress. Job stress can be defined as a subjective appraisal of a work condition, where the demands of the work environment are perceived to challenge the ability of the employee to meet those demands. This definition and the treatment of job stress as a distinct variable from global stress is consistent with the work of Holt (1983) and Judge et al. (1994). In fact, Holt (1983) showed that job stress (or occupational stress as he termed it) was an

antecedent factor to global stress. Job stress has been shown to contribute to other forms of psychological distress including global levels of stress (see Judge et al., 1994). This study has treated job stress as an antecedent variable to be consistent with this line of argumentation.

Job stress has captured the bulk of organizational research attention, as an entire field of study has emerged to examine occupational stress (OS). The bulk of the management literature in this area has examined the relationships between job stress and performance, motivation, job satisfaction and organizational consequences (including turnover and absenteeism). The relationship between job stress and mental and physical health outcomes is, however, gaining momentum in the past decade (see Leong et al., 1996; Rahim and Psenicka, 1996).

OS has been shown to directly spillover into global levels of stress (Holt, 1983). This finding seems entirely logical as work and non-work domains have been shown to be strongly interrelated (Adams et al., 1996; Duxbury et al., 1991; Judge et al., 1994). While OS has been associated with global levels of stress and satisfaction, we are not aware of any empirical work that has attempted to test the relationship between work stress and anxiety and depressed mood. We believe that such an examination would represent a significant step toward merging the knowledge gained from organizational research into OS, with psychological research into anxiety and depressed mood.

5.3.2 Individual-Organizational Interface Antecedents

This study includes the measures of work-family conflict and role overload as possible antecedents of stress, anxiety and depressed mood. Role overload exists when

the total demands on time and energy associated with the prescribed activities and multiple roles are too great to perform the roles adequately or comfortably (Higgins et al., 1992). It is logical to assume that when roles are too great to perform comfortably, some degree of distress will be experienced by the individual. Indeed, the relationship between role overload and global stress has been found to be strongly positively correlated by a number of researchers (e.g., Bohen and Viveros-Long, 1981; Cook and Rousseau, 1984; Duxbury et al., 1991; Kanter, 1977).

There have been two main approaches to the study of role overload. The first suggests that the multiple role demands of work and home domains are additive with combined overload leading to increased stress, strain and illness (e.g., Greenhaus and Parasuraman, 1986; Goode, 1974; Sekaram, 1983). The second approach, termed role addivity theory, suggests that multiple occupational and domestic roles complement one another, resulting in enhanced well-being (e.g., Cooke and Rousseau, 1984; Thoits, 1983; Verbrugge, 1986). The second approach is argued to have arisen from the male based view of home as a haven from the outside world, and is argued to be less valuable in helping to explain today's rapidly changing work and family dynamics (Swanson et al., 1998).

In empirical studies, role overload has been associated with increased psychological strain (O'Driscoll and Beehr, 1994), mental ill-health (Travers and Cooper, 1993), depression (Schaubroek et al., 1992), and psychiatric symptomatology (Rahim and Psenicka, 1996). In a comprehensive study of role overload, Abramis (1994) found that overload was significantly positively correlated with anxiety, depression, anger and job

insecurity, and negatively correlated with self perceptions of performance.

Duxbury and Higgins (1994) provided evidence that mothers experience greater role overload and perceived stress than fathers. Such gender differences were supported by a recent study by Babin and Boles (1998) which found that role overload has a stronger (negative) impact on employee well-being for female service providers in comparison with their male counterparts. Such a finding is particularly relevant to the current study, as much of the sample is made-up of female, front-line service employees.

Kinicki et al. (1996) concluded that interventions aimed at reducing stress should focus on role overload, as role overload was found not only to be positively related to psychiatric symptoms, but also interacted with perceived control, affecting the relationship between stress and other forms of psychological strain. Thus, compelling evidence exists to include role overload as an important antecedent variable in a comprehensive study of employee well-being.

Managing conflict between work and family role demands is a critical challenge for individuals and organizations and may lead to negative outcomes for both (Kossek and Ozeki, 1998). Work-family conflict refers to the conflicting role pressures between job and family that are incompatible, such that participation in one role is made more difficult by virtue of participation in the other (Greenhaus and Buetell, 1985).

One critical difference in the role structures of men and women are the relative responsibilities in work and family life. The combination of work and home responsibilities creates unique stressors for women, who find themselves constantly trying to balance the needs of two mutually incompatible domains (Barnett et al., 1987; Rosenfield, 1989;

Simon, 1995). Women have consistently reported higher levels of work-family conflict than men, highlighting the stresses associated with balancing competing roles (Ibid). At home, the domestic division of labour continues to be inequitably shared, with women bearing the brunt of child care, house care, and elder care responsibilities (Duxbury et al., 1991; Kessler and McRae, 1981). Thus, the number of competing role demands when coupled with the patriarchal nature of some work environments may place women at a greater risk of psychological disorder relative to men (Cleary and Mechanic, 1983).

There is increasing evidence of a spillover effect of work related stress and strains into the home environment (Bacharach et al., 1991). Termed work to family conflict, many men and women are finding that their work demands are constraining their ability to meet home demands, thus increasing stress and anxiety (Duxbury and Higgins, 1991; Gutek et al., 1991). Stresses and strains from home can also affect the work realm (i.e., family to work conflict), and create a vicious cycle of incompatible role demands (Gutek et al., 1991).

Although stresses in the domains of work and home life are often studied in isolation, it is acknowledged that the relationship between the demands of work and home is an important source of stress (Swanson et al., 1988). The influence of family stressors on mental health outcomes was first reviewed by Handy (1978) and Brett (1980). There appears to be a general consensus that work interferes with non-work events more than non-work events interfere with work endeavours (Barnett and Marshall, 1992; Hughes and Galinsky, 1994; Kinicki et al., 1996; Matsui et al., 1995; O'Driscoll et al., 1992). In an interesting finding by Swanson et al. (1998), in a survey of 1,668 male and female MD's

in Scotland, traditional patterns of domestic responsibilities falling on the shoulders of female MD's were maintained despite suggestions of greater equity in dual career couples. Of more direct relevance to this study, Babin and Boles (1998) examined work-family conflict in the service industry and found that front-line employees are faced with irregular work schedules, limited weekend time-off, and altering work schedules with little or no notice, all of which were found to increase work-family strain.

Little empirical research could be found linking work-family conflict to stress, anxiety and depressed mood. That which is available, however, has linked work-family conflict to increased levels of global stress (Swanson et al., 1988). In addition, Thomas and Ganster (1995) found that work-family conflict had a direct positive relationship with depression.

5.3.3 Organizational Antecedents

In addition to individual and interface variables, the organization, or work environment itself may play an important role in the mental health of employees. Wilkinson and O'Connor (1982) defined mental health as a congruent relationship between a person and his/her surrounding environments. In other words, the mentally healthy person interacts with the environment in a manner in which the requirements and resources are congruent with the needs and capabilities of the individual (CMHA, 1984). Thus, the work environment should be considered fertile ground for study in determining how well (or poorly) an individual interacts with his/her surrounding environment. In fact, as Neff (1985) pointed out, difficulties in the ability to work are often used by the medical community as a key indicator of the person's state of mental health.

The organizational antecedents included in this study are organizational culture, organizational support, flexibility of work, and work expectations. The rationale for the inclusion of each of these variables is provided below.

Amongst organizational variables, well-being has been strongly linked with organizational cultural variables (e.g., Thompson et al., 1996). Organizational culture can be defined as,

> ... a pattern of basic assumptions - invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration - that has worked well enough to be considered valuable and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (Schein, 1985, p. 9).

Ample research evidence suggests that the actual tasks one performs at work have less impact on the experience of stress than does the social milieu (Tetrick, 1992). In a recent study, Peeters et al. (1995) found that interpersonal frustrations at work to be one of the most significant of life's stressors. Intense and prolonged periods of interpersonal conflict with key stakeholders at work (e.g., supervisor) have been shown to contribute to the onset of psychological disorders (Levinsohn and Ameson, 1978; Romenov et al., 1996; Williams et al., 1981). Recent findings strongly suggest that regular and intense interpersonal conflict at work can be correlated with an increased risk of psychiatric morbidity (Romanov et al., 1996).

Job characteristics including lack of autonomy, high role ambiguity and heavy work demands (including rigid schedules), and low control have all been found to be particularly important organizational cultural sources of global stress (Billings and Moos, 1982; Spector et al., 1988). Two distinct threads of research have led to two separate but similar

models for the ill-health producing organizational culture: the high demand/low control workplace and the high effort/low-reward(recognition) workplace (Cole, 1999). In either case, a burdensome workload combined with a sense of powerlessness or injustice produces a worker whose mental health is challenged. Dr. Martin Shain, head of the Addiction Research Foundation program to promote healthier work environments believes that employers have the responsibility to "change the way work is organized to reduce the 'psycho-toxic' conditions faced by workers in high pressure, low-control jobs" (cited in Galt, 1994). Work environments requiring high effort with little reward or recognition have been linked to measures of ill-health including cardiovascular disease, infectious disease, depression and drug/alcohol abuse (Karasek and Theorell, 1990)

What these factors point to is the importance of the organizational culture (norms and expectations) in affecting employee mental health. Thompson et al. (1996) introduced the term "culture of stress" to refer to organizations with rigid work regimes and rules that stifle individual creativity, autonomy or sense of unifying purpose in work. Lindstrom (1994) examined the psychosocial criteria required for a "positive" work culture. His concluding remarks call for the creation of realistic work loads, opportunities for self control (autonomy) at work, clarified work roles, supportive social interaction, and the support of employees by occupational health services, as components of a healthy organizational culture. Each of these dimensions of organizational culture was found to be significantly related to indicators of well-being, including job satisfaction, active life, and lack of subjective stress symptoms (Lindstrom, 1994). This study will examine the impact of organizational culture on stress, anxiety and depressed mood. Organizational culture has

been operationalized in this study through an examination of (1) how supportive the culture is perceived to be of personal life, (2) the degree to which the culture encourages turnover, (3) the extent to which the culture encourages long hours, and (4) the extent to which the culture rewards performance (see Methodology chapter for details).

The degree of support an individual receives from his/her organization has also been directly related to levels of global stress (Eisenberger et al., 1986). Eisenberger et al. (1986) have performed the most comprehensive study on organizational support in the management literature. The authors present evidence to suggest that the extent to which an organization is supportive of employee opinions and ideas, acknowledges the input and efforts made by employees and recognizes the non-work lives of employees are all factors that can be directly related to employee well-being (as measured by global stress, job satisfaction and life satisfaction). While Eisenberger et al. (1986) only examined the relationship between organizational support and stress, this study additionally examines the relationships between organizational support and anxiety and depressed mood.

The flexibility of work refers to the extent to which employees can modify their work schedules and work loads to accommodate personal/family needs or preferences (Billings and Moos, 1982). Spector et al. (1988) found the more flexibility in the work schedule, the less stress an employee experiences. Thomas and Ganster (1995) found that flexible schedules and supportive supervisors positively affected employee perceptions of control over work. In turn, control perceptions were associated with less work-family conflict, dissatisfaction and depression. The research results suggest that the flexibility offered by the job may help employees to deal with stress, anxiety and depressed mood.

Finally, work expectations refers to the norms established in the firm with regards to the performance of work duties (Cook and Rousseau, 1984). The organizational expectations, including the perceived expectations of peers and supervisors, has been found to strongly influence workplace behaviour, including the extension of working hours, and the perceived inability to take holiday time (Cook and Rousseau, 1984; Lindstrom, 1994). High work expectations have been associated with increased job stress (Remondet and Hansson, 1991), global stress (Remondet and Hansson, 1991), anxiety (Carayon-Saintford, 1992; Landsbergis et al., 1992) and mental ill-health (Cooper and Kelly, 1993). This study will examine the relationships between work expectations and levels of stress, anxiety and depressed mood.

5.4 Individual and Organizational Consequences of Stress, Anxiety and Depressed Mood

There is little doubt that stress, anxiety and depressed mood are serious workplace problems. In a 1991 survey conducted by Northwestern Life (cited in Farnham, 1991) 46% of workers reported that their jobs were highly stressful. Similar figures have been reported in Canadian contexts (see Duxbury et al., 1991; CMHA, 1984). What makes stress, anxiety, and depressed mood such important variables for study are the individual and organizational consequences associated with these psychological problems. When one considers the potential consequences of stress, anxiety, and depression at an individual, organizational and societal level, the implications are staggering. The individual and organizational consequences (or outcomes) associated with stress, anxiety and depressed mood are presented below.

5.4.1 Individual Consequences

The individual consequences associated with stress, anxiety and depressed mood have received far greater research attention than either the organizational or social costs. Perhaps this is logical, for the personal costs are usually much easier to detect and measure. As we have discussed, the symptoms of stress, anxiety and depression significantly overlap, and include a host of psychological, psychophysiological and behavioural outcomes. Outside of the physical symptoms that characterize these three conditions, Jones and Boye (1992) provide an extensive list of physical symptoms and the personal toll associated with stress. This list has been reproduced in Table 1.

Table 1

The Individual Costs of Stress

• alcohol abuse	• insomnia	• insecurity
• drug abuse	• frustration	• reduced self-esteem
• emotional instability	• psychosomatic diseases	• physical health problems (coronary heart disease)
• lack of self-control	• eating disorders	
• fatigue	• boredom	• irresponsibility
• marital problems	• acute forms of mental illness	
• violence		
• depression	• suicide	
• anxiety		

Source: Jones and Boye (1992, p. 240)

We can see evidence of the interrelatedness of the constructs of stress, anxiety and depression in the list provided by Jones and Boye (1992) (i.e., they are seen to be a "cost" of stress). While the authors did not concern themselves with issues of causality, they did find strong correlations between stress, anxiety and depression. Similarly, other organizational researchers (including Weiss, 1990) list depression, anxiety, burnout and

physical health problems as the most common outcomes of prolonged stress.

Organizational researchers examining the individual costs of stress have overwhelmingly focussed on two outcome variables to the relative exclusion of all others: job satisfaction and burnout (Kinicki et al., 1996). There is ample evidence that excessive amounts of stress decrease levels of job satisfaction (e.g., Endler and Parker, 1989; Murphy et al., 1992). Similarly, sustained levels of stress have been causally related to burnout (e.g., Maslach and Jackson, 1986). While including job satisfaction and burnout in future employee health studies is important (as these variables have shown consistent significant relationships with distress variables) it is also important to expand upon the individual outcomes studied in organizational research. This study does this by including the construct of life satisfaction, as much of the psychological literature has causally linked psychological disorders to global measures of well-being (e.g., Edwards, 1992; Hyland, 1987; Pyszenski and Greenberg, 1987). In addition, physical health has been included in this study as there exists a wealth of knowledge that psychological disorders have a direct bearing on physical health (e.g., Smith and Siwolop, 1988). We will now address job satisfaction, life satisfaction, physical health and burnout.

Job satisfaction can be defined as a positive orientation toward work based on a perceived congruity between the work situation and the worker's values on those same dimensions (Locke, 1970). In fact, the amount of satisfaction an employee derives from his/her job can have a profound affect upon psychological well-being. An entire body of literature exists linking job satisfaction to global measures of well-being including life satisfaction (for a review see Murphy, 1996). Studies have also examined the relationship

between job satisfaction and stress and have concluded that a negative reciprocal relationship exists (see Judge et al., 1994). Other studies have found significant relationships between job satisfaction, global stress and the family environment (e.g., Adams et al., 1996). We are, however, aware of no study that has simultaneously tested the relationships between job satisfaction and levels of global stress, anxiety and depressed mood. This study plans to fill this void.

Life satisfaction is typically defined as the degree to which individuals judge the quality of their lives favourably, and can be equated with happiness (Judge et al., 1994). Stress, anxiety and depressed mood have been reported to decrease one's overall satisfaction with life (Bradburn and Caplovitz, 1965; Kendall and Watson, 1989). In a comprehensive study of life satisfaction, Headey et al. (1993) found strong relationships between life satisfaction and positive affectivity (+), anxiety (-) and depression (-).

It should not be surprising that grappling with mental health problems would reduce one's overall satisfaction with life. It should be noted that some clinical evidence exists to suggest that individuals who have dealt with mental illness in the past, or have learned to live with their conditions, actually report higher levels of life satisfaction than individuals never having had experienced mental illness (Kendall and Watson, 1989). Our study will further examine the relationships between stress, anxiety and depressed mood and life satisfaction.

Outside of the personal toll mental illness can have on one's personal and family relationships (Burke, 1986), working life (Bhagat, 1983; Friend, 1982) and overall satisfaction with life (Headey et al., 1993), stress, anxiety and depressed mood have also

been linked to physiological complaints and physical health outcomes (Cooper and Davidson, 1982; Israel et al., 1989).

Hendrix et al. (1985) outlined the behavioural and physiological consequences of stress. The authors provide evidence to suggest that prolonged bouts of stress can be associated with increased risk of heart attacks, especially in men. Murphy (1991) reported that job dimensions (including hierarchical position, and work hours) could be associated with increased risk of cardiovascular disease.

There is evidence that prolonged episodes of stress, anxiety and depressed mood may weaken the immune system and make it more susceptible to physical health problems (Israel et al., 1989). Changes in the nervous system, can in turn affect an individual's defence status through changes in the immune system and the body's hormone system, thus increasing susceptibility to a host of physical health problems including cardiovascular disease (Perez and Wilkerson, 1998).

The health risks associated with stress, anxiety and depressed mood form the basis for the title of the article by Smith and Siwolop (1988) that appeared in Business Week, "Stress: The test Americans are failing; The crippling ills that stress can trigger". The article goes on to outline a host of physical problems associated with prolonged stress, including cardiovascular disease, weakened immune system, and gastro-intestinal problems.

The final individual outcome included in the model is burnout. Burnout is a social-scientific construct comprised of emotional exhaustion, reduced personal accomplishment and depersonalization (Maslach, 1976). Burnout is characterized by a sense of fatigue,

of being burdened, and an inability to summon the energy that work requires. It can be differentiated from depression, as people suffering from burnout generally tend to make fewer generalizations of inadequacy beyond the work situation in comparison with depressed persons. Instead, burnout is best characterized by a belief that work is pointless and no longer gratifying.

Burnout has been most consistently studied as a long term outcome (see Lee and Ashforth (1996) for a recent review). In this study burnout is treated as an end consequence of psychological distress. This approach is consistent with previous empirical findings (see Maslach, 1976; Maslach and Jackson, 1986). Our study will examine if burnout can be associated with stress, anxiety or depressed moods.

5.4.2 Organizational Consequences

With such an extensive literature on the devastating individual consequences associated with stress, anxiety and depressed mood, one might reasonably have expected organizations to redesign their work environments to reduce the likelihood of psychological strain. Instead, many organizations have appeared preoccupied at quantifying the costs associated with stress and other psychological problems before taking any action (Karasek and Theorell, 1990). Since 1980, a growing body of literature has attempted to document the costs for employers of poor employee mental health. In a Canadian context, Perez and Wilkerson (1998) reported that mental illness represents at least $8B a year in lost productivity in Canada. The authors quote Health Canada as saying such numbers and the extent and severity of disability due to mental illness in the workplace has been severely underestimated. In the U.S., it has been estimated that stress, anxiety and

depression cost corporations $8,000 per person/per year in lost productivity alone (Perez and Wilkerson, 1998).

Research has existed for some time that clearly indicates that high levels of job stress are associated with lower levels of job performance (see Friend, 1982; Jones et al., 1988; Spector et al., 1988). Employees experiencing high stress levels have been found to be at risk of prematurely quitting, misusing alcohol or drugs during paid work hours, and heatedly arguing with customers, coworkers and supervisors (Jones, 1980). Through their extensive research, Jones and Boye (1992) found that stress is associated with a number of negative work outcomes. These outcomes have been reproduced in Table 2.

Table 2

The Organizational Costs of Stress

• thefts • accidents • reduced productivity • high turnover • absenteeism • disability payments • sabotage • damage and waste • replacement costs	• inflated health care costs • unpreparedness • lack of creativity • increased sick leave • premature retirement • organizational breakdown	• disloyalty • dissatisfaction (malaise) • poor decision making • antagonistic group action

Source: Jones and Boye (1992, p. 240)

Of utmost importance to organizations should be the finding that stress and other psychological disorders may have a direct bearing on "the bottom line". Stress, anxiety and depressed mood have been linked to low work morale, high job turnover, interpersonal conflicts and reduced productivity (Jones, 1980; Maslach, 1976). Job stress has also been linked to more extreme forms of employee counter-productivity including on the job

violence, substance abuse (including on-the-job), theft, and sabotage (Jones and Boye, 1992). Matteson and Ivancevich (1987, p. 5) concluded that "stress is implicated in industrial accidents, absenteeism, turnover, increased health care costs, and decrements in the quality and quantity of production". Major (1990) called the productivity loss to U.S. business from employee psychological problems "alarming".

The exact dollar costs of psychological problems to employers remains elusive, primarily due to the tenuous nature of drawing causal links between psychological variables and organizational measures of performance. The costs of psychological ill-health can be measured directly in terms of employee health insurance, but only indirectly in terms of turnover, absenteeism, and reduced quality and quantity of production (Kuhnert and Vance, 1992). For some time studies have pointed to the negative influence of job stress on performance (Beehr and Newman, 1978). High performance, in fact, may be gained at the expense of employee health (at least in the short run) and thus high performing firms should not assume their productivity is evidence that their workforce is healthy, as the exact opposite may be the case (Kinicki et al., 1996).

Karasek and Theorell (1992) eloquently argue that organizations focussed on finding dollar proof of employee ill-health are themselves partially responsible for the escalating problems surrounding employee mental health. The authors believe that the human costs associated with employee ill-health should be adequate cause for us to question the roles and responsibilities of employers. We concur with the sentiments of Karasek and Theorell (1992) but believe it would be remiss not to review the studies that have attempted to tag a dollar figure on psychological ill-health.

Matteson and Ivancevich (1987) estimated, from a detailed study of occupational stress and organizational outcomes, that stress costs an average firm at least 7% of sales. Others, have argued that despite this seemingly high estimate, such a figure barely scrapes the surface of the costs associated with employee mental health (see Cooper and Payne, 1988). In perhaps the most detailed study of the costs of occupational disability due to stress, anxiety and depression, in small, mid-size and large corporations, Dauer (1989) found that the three disorders costs employers $8,000 per yer, per affected employee, and that each affected employee was found to lose an average of 16 days of work per year due to their mental problems. In 1988, The total cost of stress, anxiety and depression to employers in the U.S. was estimated at $150B annually, and this cost was believed to be rising sharply (Smith and Siwolop, 1988).

The recent evidence provided by Perez and Wilkerson (1998) shows that Canadian firms are paying a similarly stiff price. Dr. Martin Shain was quoted as saying "When the indirect costs of absenteeism, lost productivity, reduced quality, overtime pay, and recruitment and training caused by disability are factored in, the real price tag of poor workplace health is nearly $20 billion annually in Canada" (cited in Canada NewsWire, 1999, p.2). Thus, the importance of understanding and attempting to reduce the incidences of stress, anxiety and depressed mood in the workplace has both individual and organizational ramifications. This study is focused on examining perceptions of productivity, organizational commitment, and absenteeism as potential organizational consequences of stress, anxiety and depressed mood.

The costs associated with mental illness for employers only begin with "bottom line" indicators (e.g., productivity, absenteeism, etc.), and can easily escalate into disability claims and law suits. In addition to losses in productivity, disability claims involving mental illness have been rising rapidly (Major, 1990). If employees and employers fail to recognize and deal with the early symptoms of mental distress, Perez and Wilkerson (1998) argue that disability claims become inevitable. Compared to other chronic problems, for which employers must bear the burden of disability costs (including diabetes, low back pain and heart disease), mental illness represented the longest average length of disability at 40 days (Perez and Wilkerson, 1998).

This study plans to explore the associations between stress, anxiety and depressed mood and three organizational outcomes: perceptions of productivity, levels of organizational commitment, and absenteeism.

The relationship between stress, anxiety and depressed mood and organizational commitment is not clear. Commitment refers to the loyalty an individual feels toward their organization and job. There is some evidence that employees experiencing high stress or anxiety over fears of job loss will reduce effort expenditure and become less concerned with organizational goals (e.g., Beehr and Newman, 1978; Jones, 1980; Roskies et al., 1993). Thus, stress, anxiety and depressed mood may decrease levels of organizational commitment if left unchecked. This study will explore the intricate relationships between organizational commitment (a key organizational outcome) and stress, anxiety and depressed mood.

Perceived productivity refers to the subjective perception of an employee regarding his or her work output (Major 1990). Productivity has been negatively associated with elevated levels of stress and prolonged periods of anxiety and depressed mood (Matteson and Ivancevich, 1987; Perez and Wilkerson, 1998). When an individual is grappling with mental illness they may reduce effort expenditure, and thus lower productivity (Beehr and Newman, 1978), as they are forced to expend energy on the emotional state itself (see Abramson et al., 1989). This study will examine the impact of elevated levels of stress, anxiety and depressed mood on perceived productivity.

Finally, absenteeism is deserving of further attention as one of the signs of psychological problems may be a slow withdrawal from the work environment itself (Kivimacki et al., 1997). The importance of including absenteeism in studies of occupational health is often argued on the grounds of the cost to society (e.g., health care), the cost to organizations (e.g., lost productivity), and the cost to the individual (e.g., psychological trauma) (Sargent, 1989; Marmot et al., 1995). However, absenteeism has proved to be an elusive phenomena to study as empirical evidence suggests that work characteristics, life events, psychological symptomatology, social support and personality traits may all partially determine the frequency of absence (Kivimacki et al., 1997).

It has been claimed that up to 60 or 70% of all workplace absenteeism is related to stress-related illness (Adams, 1987; Kearns, 1986), however, these numbers should be viewed with some caution as stress has been found to play a role in nearly all forms of ill-health. Still, Perez and Wilkerson (1998) found that 14% of worker absenteeism in Canada could be directly attributed to mental illness. Their survey of 2,515 Canadians

found that 26% of respondents had taken time off work for mental and emotional stress, compared with 20% who were absent because of physical health or injury.

5.5 Coping and Social Support

This study examines the relationship between coping and social support and the incidence of stress, anxiety, and depressed mood. Coping was operationalized by various coping strategies that could be adopted by employees while social support was operationalized by supervisor support. The organizational literature involving coping and social support in relation to forms of psychological distress is presented below.

5.5.1 Coping with Stress, Anxiety and Depressed Mood

In the face of all forms of psychological problems, individuals attempt to cope with their situations. Coping can be defined as the constantly changing cognitive and behavioural efforts to manage internal and external demands that tax or exceed a person's resources (Folkman et al., 1984). When individuals deal with stressful events they consciously or subconsciously assess, select and engage in particular cognitive processes and behaviours, termed coping strategies (Endler and Parker, 1989; Lazarus and Folkman, 1984). When an individual deals with a stressful event, for example, that person is believed to make a primary appraisal or evaluation of whether anything is at stake as a result of the event (or stimulus). Then, a secondary appraisal is made in which the individual considers whether anything can be done to cope with the stressful event (Lazarus and Folkman, 1984). Employee coping behaviours are believed to be determined by the amount and quality of resources a person can draw upon when faced with a problem or potential stressor (Heaney et al., 1995a).

Lazarus and Folkman (1984) divide coping strategies into problem focussed and emotionally focussed categories. Problem focussed coping is believed to involve an active effort to directly confront the problem causing the distress. Emotion focussed coping involves only the management of the emotional distress symptoms associated with the situation (e.g., escapism, self-blame, denial, avoidance, substance abuse, etc.). Israel et al. (1989) found that the use of emotion based coping techniques was related to higher scores on measures of depression.

While Lazarus and Folkman's (1984) dual categorization has proved somewhat useful in differentiating functional from dysfunctional coping behaviours, other authors have tried to create further divisions for coping behaviours. Heaney et al. (1995a) expanded Lazarus and Folkman's (1984) categorization and argue for three categories of coping behaviours: (1) those aimed at solving, altering or controlling the situation, (2) those aimed at changing the meaning or appraisal of the situation, and (3) those aimed at managing or controlling the symptoms of distress. While (1) and (3) closely resemble Lazarus and Folkman's (1984) problem and emotion focussed categories, Heaney et al. (1995a) have added the critical aspect of cognition to the coping puzzle. The authors of that study argue that how we cognitively assess a stressful situation and the degree of meaning we attach to it, will directly influence our coping strategy.

Although numerous authors have tried to pinpoint factors that influence coping at work, Neff (1985) reminds us that to the extent that a network of coping behaviours becomes habitual and automatic, important segments of the work personality may become relatively inaccessible to our awareness as they function as part of our subconscious. This

observation causes obvious concerns for social scientific researchers attempting to examine coping behaviours that have become automatic and subconscious to an employee. It is our contention, however, that despite the reality that some coping takes place on a subconscious level, we have still not reached a point where we know enough about conscious coping strategies to abandon studies of employee coping altogether.

While anecdotal research has demonstrated that worksite coping resources may be linked with mental health (e.g., Korabik et al., 1993), little quantitative evidence has documented the association between worksite coping strategies and levels of psychological distress. There is also a shortage of quantitative research indicating how worksite coping resources could be improved (for a commentary see Heaney et al., 1995b).

To further complicate the issue of workplace coping, clinical evidence exists to suggest that the development of a psychological problem at work (including stress, anxiety and depressed mood) also disturbs the ability of the individual to cope as they 'normally' would with work stressors (Neff, 1985). Thus, those employees exhibiting high levels of stress, anxiety or depressed mood may also be experiencing problems in developing effective coping strategies, making their mental health problems cyclical in nature. In particular, employees suffering from depression are believed to have difficulty mounting effective coping strategies (Blake, 1994). Clinical evidence suggests that depressed persons find it hard to make decisions and take action (Billings and Moos, 1985).

Investigations into the manner in which individuals cope with everyday experiences of depressed moods are very important given that most individuals, at least initially, have

been found to rely upon their own internal resources to deal with their problems (Vredenberg et al., 1988). It is particularly important to understand the methods that individuals use to cope with depression in both work and non-work realms of life, for the manner in which individuals cope with their depressive experiences plays a major role in the course and subsequent outcome that the depressive experience will take (Billings and Moos, 1984; Blake, 1994; Kleinke, 1988). Depressed individuals have been found to be overly reliant on emotional discharge coping (venting of emotions), which is strongly related (+) to depression severity (Blake, 1994). This would suggest that the coping patterns of depressed persons may be characterized by the overuse of maladaptive coping strategies. However, this line of argumentation requires further empirical validation.

Perceptions of how amenable the organizational environment is to the implementation of a coping strategy is believed to affect how often a coping strategy is employed (Heaney et al., 1995a). The degree of perceived organizational support (or insensitivity) toward psychological problems may influence the strategy an employee chooses to deal with his/her condition. For example, Kimmel (1993) found that men were more likely to use sick days to take care of a newborn baby than to utilize the company's formal parental leave policies. The rationale of the men in Kimmel's study for using personal absence days rather than parental leave was that they did not want to betray organizational norms. This finding supports the contention that how an employee copes with a stressful situation may be influenced by organizational norms and expectations.

The coping strategy that an individual employs in a particular situation is believed to be influenced by both situational variables and the person's coping resources (Terry et

al., 1995). To the extent that situational variables contribute to the selection of coping strategies, organizational factors become critical to uncover and understand with respect to workplace coping. Heaney et al. (1995b) argue that three factors are particularly important to coping efforts in an organizational context: (1) social support (including the support of supervisors and coworkers) (see House, 1981; Lazarus and Folkman, 1984), (2) perceived control over the situation (see Karasek and Theorell, 1990), and (3) the degree of participative decision making in the organization (an aspect of organizational culture) (see Cherniss and Egnatios, 1978).

5.5.2 Social Support

This study is interested in the relationship between social support and the incidence of stress, anxiety and depressed mood. An appropriate, starting point in a discussion of social support is to define the construct. Perhaps the strongest definition of the construct can be created by a summation of the classic article by House (1981) on social support within an organizational context. House identified four specific behaviours that could be considered supportive: (1) emotional support, which involves expressions of caring and sympathizing, (2) instrumental support, which involves providing aid or feedback on how to perform a specific task or function, (3) informational support, which involves providing cognitive guidance to help the individual solve a problem or understand a situation, and (4) appraisal support, which involves providing information or feedback that can be used to positively evaluate one's personal performance and enhance self-esteem. The assumption behind House's (1981) work is that failing to have one's needs for support met in a particular area is potentially stressful, and may directly decrease well-being and

feelings of self-worth.

Other definitions of social support focus more explicitly on subjective perceptions. For instance, Heller et al. (1986, p. 67) describes an activity as socially supportive "if it is perceived as esteem enhancing or if it involves the provision of stress-related interpersonal aid". The point to be stressed from reviewing various definitions of social support is that the construct encompasses not only situation specific assistance, but also a subjective sense of social connection, closeness and esteem enhancement.

In the work environment, the support of supervisors has received an appreciable increase in research attention. Two decades ago, Cooper and Marshall (1978) found that reports of social support were highest for persons who were highly involved in their jobs, had cohesive relationships with coworkers, and had supportive supervisors who encouraged job involvement through work innovation and participative decision making. In a comprehensive study of social support at work, Nelson (1990) found that the four major causes of employee stress could all be related back to supervisors: (1) the failure of managers and supervisors to give employees the opportunity to express their views, (2) the failure of supervisors to provide new employees with adequate training, (3) the setting of unrealistic deadlines by supervisory staff, and (4) insensitive, uncaring supervisors who were not considered to be 'approachable'. Jones-Johnson and Johnson (1992) found that the lack of supervisor support was the most critical organizational variable in predicting psychosocial ill-health. Nelson (1990) and Jones-Johnson and Johnson (1992) provide compelling evidence that supervisors are potentially pivotal organizational stakeholders in the employee mental health equation.

Little empirical research exists that links supervisor behaviours with anxiety and depression. This study extends the research performed on supervisor behaviours to include the impact of supervisors on levels of anxiety and depressed mood. Our study has operationalized social support by examining supervisor support as supervisors fall under the control of the organization, while the organization can do very little to influence external sources of support. It is, however, important to utilize the social support literature to provide related theories to help predict the relationship between supervisor behaviours and stress, anxiety and depressed mood.

A wealth of psychological literature has examined the impact of social support (usually originating from outside the workplace) on mental illness. The lack of an adequate social support network, especially the support of a spouse or close family members has been found to leave a person vulnerable to becoming depressed or anxious in response to stress (Kendall and Watson, 1989; Pearlin et al., 1981; Thoits, 1983). People who are integrated within a supportive network consisting of spouse/significant other, family, friends, and community have been found to be less depressed and generally show more positive signs of mental health than people without such support, regardless of the amounts of stress they have experienced (Cohen and Will, 1985; Thoits, 1982). The relationship between social support and depression, in particular, is quite complex, as social withdrawal or a lack of social skills is a common symptom of depression and may keep a person from establishing or maintaining potentially supportive relationships (Stokes and McKirnan, 1989).

Very little has been written about the relationship between social support and anxiety, yet intuitively these two constructs seem to be interconnected. Thoits (1986) actually defined social support as coping assistance which would help reduce anxiety. Unfortunately, the term anxiety is often used interchangeably with stress and we are therefore left with very little specific information on the relationship between social support and anxiety.

In one of the few studies to address this relationship, Stokes and McKirnan (1989) found that social support may assist coping and reduce anxiety by providing direct coping assistance, by encouraging more effective problem-focussed coping, or by influencing one's appraisal of the stressor. In an interesting finding by Fusilier et al. (1986), perceived social support from coworkers was most strongly related to reducing anxiety, while support from family and friends was most strongly correlated with improvements in depression. However, this finding should be viewed with caution as we are unaware of any replication of this result in the literature, nor of any theoretical foundation that would serve to explain such a finding. What we do know, is that social support may buffer the negative impact of psychological distress, while influencing our perceptions of how other people see us, and how we see ourselves (Stokes and McKirnan, 1989). Thus, perceptions of a strong support network and strong relationships at work and at home may have positive influences on our self-esteem, and thus potentially on our resiliency to stressors.

5.6 Gender and Job Type Differences in Mental Health

There is a strong debate within the psychological literature with respect to the similarities and differences between men and women and mental health. For example,

there is vigorous disagreement over whether women have more psychological problems than men, whether men and women cope with mental illness in different ways, and over the extent to which such findings may be attributable to how psychological illness and coping are defined and measured (for commentaries see Cleary and Mechanic, 1983; Dohrenwend and Dohrenwend, 1977; Gove and Tudor, 1977). This section reviews the arguments surrounding gender differences and mental health, and includes a section on the need to include job type as a control variable when assessing workplace gender differences.

5.6.1 Gender Differences in Mental Health

Whether men or women experience more psychological problems has been the subject of much debate in the literature. Most of the literature suggests that women are more likely to view themselves as having emotional problems, to seek help for such problems, and to be prescribed more medications for the treatment of psychological disorders (Cleary and Mechanic, 1983; Gove, 1978; Nelson and Hitt, 1992; Roxburgh, 1996; Perez and Wilkerson, 1998; Weissman and Klerman, 1977). In addition, there have been studies that found that women are more likely than men to experience stress (e.g., Defares et al., 1984; Dirken, 1967), anxiety (Defares et al., 1984), and depression (Cleary and Mechanic, 1983; Weissman and Klerman, 1977).

Although most studies show that women report comparatively higher levels of anxiety, Defares et al. (1984) were quick to point out that men exhibit comparatively more symptoms of prolonged distress and anxiety, including hypertension and heart disease. Barnes and Maple (1992) argue that while women seem to figure more frequently in mental

health statistics, men outnumber women in a number of 'deviant' behaviours including alcoholism, drug abuse, crime, violence and suicide. Dr. Martin Shain weighed in on this issue by saying, "A woman is more likely to admit she has a problem that is making her feel bad" (cited in Sarjeant, 1987, p. 2). In combination, these findings may suggest that females are more willing to report psychological difficulties and seek help than men (which creates the impression that women have more psychological problems), while men are more likely to grapple with mental health issues alone, leading to serious long-term consequences for both their mental and physical health. Discussing the bind that men may be faced with in dealing with mental health problems, Barnes et al. (1990) stated, "It may be that men are being deprived of the potential benefits of mental health services because they themselves are less likely to identify their problems in terms of mental distress and to seek help for them on those terms".

The organizational stress literature has developed two competing theories to help explain the reasons why women are believed to experience more psychological distress than men. The differential vulnerability hypothesis posits that although employed men and women may be exposed to similar levels of stress, differences in responses to the social environment result in women experiencing the same environmental cues as more stressful (Roxburgh, 1996). Thus, the differential vulnerability hypothesis focuses on differences in cognition, or how men and women internalize external cues. In contrast, the differential exposure hypothesis suggests that women's greater psychological distress is a result of their relatively higher exposure to stress in comparison to that of men (Roxburgh, 1996).

The gender debate in the stress literature has focused primarily on the role of cognition versus exposure. This study takes the position that both the differential vulnerability and exposure hypotheses may be faulty as they (1) do not recognize the potential role of both cognition and exposure simultaneously, (2) they assume that all forms of distress can be treated in the same manner, and (3) they do not value the potential role of gender theories in explaining the psychological differences in reported levels of distress.

Barnes and Maple use the term 'gender blindness' in referring to researchers who report women experiencing more psychological distress than men without explaining the reasons for these statistical differences in greater detail. The authors argue there are three ways in which gender impacts mental health findings: 1) the way in which mental health and ill-health are defined and measured, 2) the different rates at which mental disorder is apparently experienced by men and women, and 3) the evidence of different professional responses once men and women have come in contact with the mental health system.

As we have noted, mental health is not easily defined, and studies which have tried to explore how people describe mentally healthy adults have demonstrated the extent to which such concepts are socially determined. In an often cited study, Broverman et al. (1970) found that the terms used by both male and female clinicians to describe healthy women added up to a very negative assessment and one that varied more from an assessment of "ideal health" than did descriptions of a normally healthy man. Women were considered to be less healthy than men, because they were thought to be more

submissive, less independent, less adventurous, more easily influenced, less aggressive, less competitive, more excitable in minor crises, having their feelings easily hurt, being more emotional, more conceited about their appearance and less objective (Broverman et al., 1970).

While it may seem convenient to dismiss Broverman and his colleagues findings as relics of long-past gender stereotypes, similar findings have been presented by Fabrikant (1974), Jones and Cochrane (1981), Cochrane (1983) and Barnes and Maple (1992). In the most recent study, Barnes and Maple (1992) argue that one of the results of a patriarchal society has been to ensure that characteristics typically associated with women are consistently described not only as less desirable, but also less healthy.

> The irrational, subjective woman by her very nature is closer to madness than the scientific rationale male who not only controls most of the external world but also has greater control over his own physical and mental well-being (Barnes and Maple, 1992, p. 8)

With respect to the issue of how prevalent psychological disorders are experienced by men and women, there are a number of factors to consider. When we ask the question 'Are women really mentally ill more often than men?' we must consider the social context in which the question is being asked. As we have reported, the bulk of the mental health literature provides evidence from numerous sources to suggest that women suffer from mental illness more frequently than men. There is evidence from hospital admissions, referrals from GP's, and survey results that would all suggest that women are more often identified as having mental health problems (Barnes and Maple, 1992). It is possible to suggest that such findings may be the result of the circumstances that women find themselves in, in a male dominated society. But in addition, what is defined and measured

as mental health and ill-health are themselves a function of that domination. Cochrane (1983) discredits the notion that women are biologically more prone to mental illness and emphasizes the role of social forces in defining mental health and illness. In his study he concludes,

> It is difficult to see how a major biological difference between the two sexes in the susceptibility to mental illness could have appeared only recently, only in certain ethnic groups, and only in the married. Obviously any kind of biological explanation must be placed firmly in a social context for it to be able to provide a useful explanation for differences in mental health. (Cochrane, 1983, p. 45-46)

A closer look at statistics, especially psychiatric hospital admission rates, reveals that young men have a higher admission rate than young women, but women outnumber men in middle age and older age groups (Barnes and Maple, 1992). Amongst single, widowed, and divorced people, the rate of admission is higher for men than for women (Ibid). Amongst married individuals, on the other hand, the rate of admission is much higher for women than men. The predominance of married individuals in the adult population may, therefore, partially explain the fact that the overall rate of admission is higher amongst women than men (Cochrane, 1983; Barnes and Maple, 1992).

For many women getting married means either removing themselves from the work world to become an at-home mother, or due to career ambitions or budgetary realities, trying to juggle the often incompatible demands of work and family life. Either way, the woman has less time for herself or her own development in comparison to that of her spouse. This loss of self as part of the institution of marriage has lead many authors to conclude that the burdens of married life place women at greater risk of psychological problems than married men (e.g., Barnes and Maple, 1992; Cochrane, 1983; Jones and Cochrane, 1981, Miller, 1988).

Married men, by contrast, have been shown to be far less likely to develop psychological problems than their single counterparts, as the institution of marriage has been argued to provide the necessary support mechanisms for men to thrive in a patriarchally based work environment (Barnes and Maple, 1992). Touching on the issue of loss of the female identity in a patriarchally structured work and family environment, Miller (1988) wrote,

> Male society, by depriving women of the right to its major 'bounty' - overlooks the fact that women's development is proceeding but on another basis. One central feature is that women stay with, build on, and develop in a context of connections with others. Indeed, women's sense of self becomes very much organised around being able to make and then to maintain affiliations and relationships. Eventually for many women, the threat of disruption of connections is perceived not just as a loss of a relationship but as something closer to a total loss of self. (p.83)

This loss of connection, perhaps explains the higher incidences of psychological problems with stay-at-home mothers. For working mothers, role overload, work-family conflict and time away from career for child bearing and rearing may all contribute to disruptions in the relationships built at work and at home. These challenges, when coupled with the manner in which our society defines, measures, and treats mental ill-health may account for the statistical discrepancies between men and women's seemingly different rates of psychological distress.

Research with managerial samples has shown that men and women share several stressors including time pressures and work overload (Korabik et al., 1993; McDonald and Korabik, 1991; Nelson and Quick, 1985). However, there is also reason to believe that women managers are subject to more employment related stressors than men in comparable positions. Some problems that have been postulated to be especially stress inducing for women managers are prejudice and discrimination, stereotypes, social

isolation, job strain and the work/family interface (Jick and Mitz, 1985; Nelson and Quick, 1985; Powell, 1988).

Women are believed to experience unique stressors by virtue of their entry into traditionally male dominated, patriarchal organizations (Jick and Mitz, 1985; Nelson and Quick, 1985; Nelson and Hitt, 1992). The typical female job remains underpaid, carries low prestige, and provides little opportunity for influencing the work process (see Gallos, 1989; Tharenou and Conroy, 1994). In an interesting finding, Nelson and Hitt (1992) reported that women experience political exchanges and gamesmanship in the workplace as extremely stressful in comparison to their male counterparts. This finding may be partially explained by the differences in the relative power positions of men and women in the workplace, leaving women more vulnerable to power games. In a recent study, Pugliesi (1995) found that gender exerted the strongest effect on stress differential. Still, Thoits (1986) cautions that the relatively small number of comparable male and female role structures makes an examination of gender differences in levels of stress very difficult.

A final reason why men and women may report different levels of mental distress, may be due to differences in coping strategies. In stressful situations, women have been found to seek social support while men engage in more intrapersonal methods of coping (Defares et al., 1984). Some studies show that men are more likely to employ problem focused coping techniques that directly confront the problem, while women are believed to resort to emotionally based coping strategies and tend to utilize social support for seeking answers to their problems (Defares et al., 1984; Lazarus and Folkman, 1984).

In terms of dysfunctional coping (or Lazarus and Folkman's (1984) emotion based coping) men have been shown to utilize alcohol to deal with psychological strain more frequently than women (Defares et al., 1984). Cooper and Melhuish (1984) found that thirty percent of male managers and forty percent of female managers used tranquillizers or antidepressants for relieving symptoms of stress, anxiety and depression. While this finding sheds light on the coping methods used by some managers to deal with stress, anxiety and depressed mood, it also emphasizes the prevalence of psychological distress in the workforce and underlines the importance of this research.

Until recently, there have been fairly consistent research findings to suggest that women are almost twice as likely as men to suffer from depression (McGrath et al., 1990; Nolen-Hoeksema, 1987, 1990). While we have reviewed the literature that would strongly suggest that such findings are largely due to how we define and measure psychological ill-health in our society, some authors point to gender differences in coping strategies as being the central reason for the different levels of psychological distress reported in men and women.

Nolen-Hoeksema's (1987) theory of coping suggests that women are more vulnerable to depression because they engage in what has been termed a ruminative coping style. As she defines it, "a ruminative response is one in which the individual's behaviour and cognitions repetitively channel the individual's attention to her depressive symptoms and the possible causes and consequences of those symptoms" (Nolen-Hoeksema, 1990, p. 161). It has been suggested by some authors that women are more likely to ruminate about their mood rather than engage in active coping behaviours aimed

at alleviating the depressive affect (Blake, 1994). Nolen-Hoeksema (1990) believes that men adopt coping styles that include "cognitions and behaviours designed to draw a person's attention away from his symptoms of depression" (p. 161). Although differences in the coping mechanisms of men and women dealing with depression have been found, they have not been consistent, and represent a contentious area of debate in the psychological literature.

This study assesses gender differences with respect to levels of psychological distress, antecedents and outcomes, and coping and social support (while controlling for job type). In addition, a male and female model of employee mental health is created to better understand the gender differences in the key variables that impact employee mental health.

5.6.2 Job Type Differences

The type of job a person holds may also influence their state of well-being, and help to explain gender differences. Previous research examining gender differences and employee health may have been confounded by the fact that men and women tend to hold quite different types of job, and these job type differences have been unaccounted for in the bulk of the literature. Women are more likely to be compressed into the middle and bottom class of organizations and are overly represented in the underpaid helping professions, or "pink-collar" jobs (Statistics Canada, 1999). These positions and occupations tend to have less control and autonomy, yet possess high job demands. "Toxic" high demand/low control environments have been strongly linked to decreased mental health (Fox et al., 1993; Karasek, 1990).

While little empirical research has been performed to establish job type as a confounding variable in gender differences, those studies which are available suggest that job type can influence perceptions of stress and work-family conflict (e.g., Frone et al., 1992; Marshall and Barnett, 1993; Spitz, 1988). Frone and his colleagues (1992), for example, found that hierarchical position had a significant impact on the experience of stress and work-family conflict. The authors suggested that job type differences may reflect the structural characteristics and constraints of the jobs occupied by professionals in comparison to non-professionals.

O'Neill and Greenberger (1994) offer perhaps the most compelling rationale for the inclusion of job type as a contextual variable in workplace mental health research. In their study, the authors note that professionals (including upper level management) are more likely to occupy positions which afford "more flexibility (personal control) over the timing of work, thus creating some leeway..." in managing life's competing priorities (p. 102). O'Neil and Greenberger (1994) go on to argue that professional positions are more likely to provide greater extrinsic and intrinsic rewards which may make it easier to cope with stressors and conflicting demands. Higher levels of intrinsic satisfaction and control have also been found to be associated with greater psychological well-being (Barnett et al., 1987; Greenberger and O'Neil, 1993). In addition, those employees who receive greater extrinsic rewards (e.g. salary) may be in a better position to balance work and family demands by purchasing outside help and services (e.g., private day-care, maid service, personal assistant, etc.), that employees at lower salary levels would be unable to afford.

Job type may also act as a surrogate measure for a number of other important demographic variables including education, income, and role autonomy. Seminal work by Rapoport and Rapoport (1976) reported that individuals who hold career positions are more highly committed to their work roles, spend more time and energy in paid employment, have higher levels of autonomy and control, receive greater renumeration and have more formal education than their non-professional counterparts. With one exception (time at work), all of these factors have been linked to an increased ability to cope with psychological distress (see Barnett et al., 1987; Karasek, 1990; Voydanoff, 1987, 1988). It should also be noted that a number of researchers have linked greater workloads (as measured by time spent at work) to greater role strain, role overload, stress, and psychosomatic illness (Crosby, 1991; Crouter, 1984; Marshall and Barnett, 1991). Therefore, despite the tendency of some authors to expound the benefits of professional job types for their buffering role against psychological distress, the professional "workaholic" appears more susceptible than ever to the onset of psychosomatic illness (Marshall and Barnett, 1991).

Thoits (1986) is a strong advocate of controlling for job type in gender research in organizational settings. She cautions that not only are there a relatively small number of comparable male and female role structures in organizations, but also emphasizes that it is critical to differentiate if the stress (or other psychological problems) is associated with the organizational position, or truly a gender difference. In this study all of the examinations of gender related differences control for job type in order to eliminate this confusion.

Many of the gender differences in psychological distress previously reported in the literature did not control for job-type differences. This study seeks to provide a better understanding of the intricate three-way relationship between psychological distress, gender and job type.

6. A-priori Theoretical Development

Having outlined the variables that proved to be important in previous research, it is also important to provide some initial predictions, or propositions, as to what we expect to find, and the underlying theories that support our propositions. Providing a theoretical contribution to the occupational health literature is a central goal of the research, and bridging the gaps between the organizational stress, psychological and psychiatric literatures represents an important theoretical achievement.

As this study builds upon theory from various academic disciplines, it is appropriate to briefly examine how theory will be developed in the current study. One of the primary theoretical objectives of this study is to create a more comprehensive understanding of occupational health by (1) integrating the existing literature on occupational health, and (2) performing a study that will allow us to assess what factors play a key role in occupational health of our sample. As Bhagat (1983, p. 210) stated, "studies of occupational health are drawn from numerous fields. Isolated pieces of information yield more value when they are assimilated into a coherent whole, but occupational health currently lacks an overarching framework". Thus, the creation of such a framework, and an examination of the key variables therein, constitutes an important theoretical achievement. The a-priori theory development for this study involves pulling together the literature from diverse academic fields into a theoretical framework and developing a set of propositions based upon the strongest relationships identified from the literature.

The second aspect of theory development in the dissertation can be found in the discussion and conclusions sections, where the goal is to build upon our a-priori

knowledge in order to build meaningful insights into occupational health. The discussion and conclusions sections of the thesis provides the outlet for discussing the implications of the results in terms of what they mean for men, women, employees, employers, mental health professionals, and future occupational health research, and also provides the opportunity to 'dig-deeper' into the relationships found to be significant in the causal modelling procedures.

6.1 Propositions

Prior to beginning the analysis of any data set it is important to review which variables have received the most attention in the literature and the theoretical reasoning behind variable interrelationships. Armed with this information it is equally important to provide some propositions into what we expect to find in the data analysis and why. Propositions have been developed for the measures of psychological distress used in the study (stress, anxiety and depressed mood), the antecedent factors, the individual and organizational consequences associated with psychological distress, and gender differences (the propositions are listed in Table 3, and discussed in the sections below).

Table 3

Propositions

No.	Proposition
1	*Anxiety and depressed mood will share the strongest interrelationship of the study's three primary variables (positive correlation).*
2	*The correlation between stress and depressed mood will be statistically significant (positive correlation).*
3	*The relationship between stress and anxiety will be statistically significant (positive correlation).*
4	*Perceived control will have significant negative relationships with stress, anxiety and depressed mood.*

5	*Positive affectivity will have significant negative relationships with stress, anxiety and depressed mood.*
6	*Negative affectivity will have significant positive relationships with stress, anxiety and depressed mood.*
7	*Job security will have significant negative relationships with stress, anxiety and depressed mood.*
8	*Mobility will have significant negative relationships with stress, anxiety and depressed mood.*
9	*Underemployment will have significant positive relationships with stress, anxiety and depressed mood.*
10	*Work involvement will have significant negative relationships with stress, anxiety and depressed mood.*
11	*Job stress will have significant positive relationships with levels of global stress, anxiety and depressed mood.*
12	*Work to family conflict will have a stronger (positive) relationship with stress, anxiety and depressed mood than family to work conflict.*
13	*Role overload will have significant positive relationships with stress, anxiety and depressed mood.*
14a	*An organizational culture supportive of personal life will have significant negative relationships with employee stress, anxiety and depressed mood.*
14b	*An organizational culture that encourages turnover will have significantly positive relationships with employee stress, anxiety and depressed mood.*
14c	*An organizational culture that encourages long hours will have significant positive relationships with employee stress, anxiety and depressed mood.*
14d	*An organizational culture that rewards performance will have significant negative relationships with employee stress, anxiety and depressed mood.*
15	*Organizational support will have statistically significant negative relationships with stress, anxiety and depressed mood.*
16	*A work environment that is perceived to be highly flexible will have significant negative relationships with employee stress, anxiety and depressed mood.*
17	*High work expectations will have significantly positive relationships with stress, anxiety and depressed mood.*
18	*Life satisfaction will have significant negative relationships with stress, anxiety and depressed mood.*
19	*Job satisfaction will have significant negative relationships with stress, anxiety and depressed mood.*
20	*Burnout will have significant positive relationships with stress, anxiety and depressed mood.*
21	*Physical health will have significant negative relationships with stress, anxiety and depressed mood.*
22a	*Positive productivity self-reports will have negative relationships with stress, anxiety and depressed mood.*
22b	*Negative productivity self-reports will have positive relationships with stress, anxiety and depressed mood.*
23	*Organizational commitment will have significant negative relationships with stress, anxiety and depressed mood.*

| 24 | *Absenteeism will have significant positive relationships with stress, anxiety and depressed mood.* |
| 25 | *Women (controlling for job type) will report significantly higher levels of stress, anxiety and depressed mood than men.* |

6.1.1 Psychological Distress Propositions

1. Anxiety and depressed mood will share the strongest interrelationship of the study's three primary variables (positive correlation).

This study has attempted to extend the occupational health literature by including anxiety and depressed mood into the vast body of work surrounding stress in the workplace. Anxiety and depressed mood research has primarily come from the domain of social and clinical psychology. In examining the three primary variables of the study, the literature would suggest that anxiety and depression are highly comorbid (or interrelated) for many individuals (e.g., Kendall and Watson, 1989). In fact, much of the clinical literature in psychology is devoted to the so called "affective disorders" of anxiety and depression, with much of the research focussed on the efficacy of the drug family known as selective serotonin reuptake inhibitors (SSRI's) in the treatment of both depression and anxiety. Kendall and Watson (1989) in their book Anxiety and Depression: Distinctive and Overlapping Features outline the similarities and differences between the two disorders and argue that the two conditions should be studied together as they have been shown to be highly interrelated in empirical research. Thus, this study expects anxiety and depression to have the strongest (positive) correlation of the three forms of psychological distress under study.

2. *The correlation between stress and depressed mood will be statistically significant (positive correlation).*

A recent study by Perez and Wilkerson (1998) found that depressive states are stress induced 50% of the time in a sample of Canadian employees. This finding is consistent with earlier research by Weissman et al. (1977) who found that prolonged periods of exposure to stressful situations were frequently accompanied by depressive states. Due to this evidence, this study proposes that the association between stress and depressed mood will be positive and statistically significant.

3. *The relationship between stress and anxiety will be statistically significant (positive correlation).*

Greenglass and Burke (1988) found that persons exposed to stressful situations over a period of time were more likely to worry about their jobs and experience heightened levels of anxiety. Due to the connection between worry (a symptom of anxiety) and stress, this study proposes that the association between stress and anxiety will be positive and statistically significant.

6.1.2 Antecedent Propositions

Propositions were developed for the individual personality and attitude antecedents, the individual-organizational interface antecedents, and the organizational antecedents.

6.1.2.1 Individual Antecedent Propositions

Propositions were developed for individual antecedents, including the personality variables of perceived control, and positive and negative affectivity, and the work attitudes surrounding job security, mobility, underemployment, work involvement and job stress.

4. Perceived control will have significant negative relationships with stress, anxiety and depressed mood.

Perceived control can be defined as the degree to which an individual possesses a generalized expectancy that rewards or outcomes in life are controlled by the individual's own actions, or by external forces (Rotter, 1966; Spector, 1988). Perceived control has received much research attention in organizational settings since the pioneering work of Karasek (1979) who examined job demands in light of the degree of worker control (or lack thereof). A high degree of perceived control (individuals who feel as though they are shaping their environments, rather than their environments shaping them) has been linked to positive psychological functioning (e.g., Bandura, 1988), while a low degree of perceived control has been associated with heightened levels of stress (Cohen and Edwards, 1989; Desai, 1990), anxiety (Bandura, 1988; Hurrell and Murphy, 1991), and depression (Hurrell and Murphy, 1991; Perez and Wilkerson, 1998). There is some disagreement, however, if perceived control has a direct affect on psychological well-being or if it acts as a buffer (in the case of internalizers) on the impact of stressors on the development of psychological problems. As much of the occupational health literature (e.g., Bandura, 1988; Hurrell and Murphy, 1991) has treated perceived control as an antecedent factor and found significant negative relationships with psychological functioning we expect to produce similar results.

5. Positive affectivity will have significant negative relationships with stress, anxiety and depressed mood.

Positive affectivity is a personality predisposition that reflects one's level of positive engagement in the environment (Judge and Hulin, 1993). This study expects that

employees who are predisposed to the personality characteristics of positive affectivity including general happiness, joy, high energy, mental interest, alertness and determination will have lower levels of stress, anxiety and depressed mood than individuals with low levels of positive affectivity. Individuals engaged in their environments (work and non-work) have been shown to be generally more content and score highly on dimensions of well being (Judge and Hulin, 1993; Judge and Locke, 1993). Therefore, this study proposes that persons with high levels of positive affectivity are less likely to experience psychological distress than individuals with lower levels of positive affectivity.

6. Negative affectivity will have significant positive relationships with stress, anxiety and depressed mood.

Negative affectivity is a broad distress variable that combines the negative emotions of fear, nervousness, anger, guilt, disgust, sadness, loneliness, and self-dissatisfaction (Kendall and Watson, 1989). Many of these emotions are considered to be symptoms of anxiety and depressed mood. For instance, fear and nervousness are symptoms of anxiety (Bourne, 1990), and sadness, loneliness and self-dissatisfaction are symptoms of depressed mood (Kendall and Watson, 1989). This study expects that individuals who are predisposed to high levels of negative affectivity will be more likely to experience psychological distress than individuals with low levels of negative affectivity.

7. Job security will have significant negative relationships with stress, anxiety and depressed mood.

In addition to personality factors, work attitudes have been found to be related to employee well-being. For instance, perceptions of job security have become an increasingly studied organizational variable in the age of downsizing, for their impact on

employee satisfaction, commitment, productivity and well-being. Job security can be defined as the extent to which an employee feels confident and assured of their employment status. The proposition developed for job security is based upon the efforts of Greenhalgh and Rosenblatt (1984), who found that individuals who perceive threats to their job security react with increased stress. Kuhnert et al. (1989) furthered this work, and found that perceptions of job security were significantly related to increased depression symptomatology. This finding has strong intuitive appeal as job security falls largely outside the control of employees, and therefore feelings of helplessness (a symptom of depression) may emerge for workers who perceive their jobs to be in danger. In turn, we know that feelings of helplessness, over time, lead to depressive states (Kendall and Watson, 1989). Therefore, this study expects that job security will have significant positive relationships with stress, anxiety and depressed mood.

8. Mobility will have significant negative relationships with stress, anxiety and depressed mood.

Mobility refers to the extent to which an employee perceives that he/she can easily find another job with similar pay and benefits. Perceptions of mobility have been linked to increased feelings of control (Kuhnert and Vance, 1992). As high levels of perceived control have been shown to be positively related to well being (e.g., Bandura, 1998), this study expects that employees who perceive themselves as highly mobile will be less likely to experience stress, anxiety and depressed mood than individuals with low perceptions of mobility.

9. Underemployment will have significant positive relationships with stress, anxiety and depressed mood.

Underemployment refers to the perception of an employee that he/she is performing a job that does not fully utilize their skills or training, and does not provide opportunities for personal growth or satisfaction. Jones-Johnson and Johnson (1992) found that underemployment was strongly related to a deterioration of the employees self-image, decreased feelings of control, reduced intellectual functioning, social maladjustment and a decreased sense of well-being. As underemployment has been linked to decreased well-being, this study propose that individuals with a high perception of underemployment will be significantly more likely to suffer from stress, anxiety and depressed mood. It should also be noted that underemployment may cause feelings of helplessness and fatalism (O'Brien, 1986), which, in turn, have been found to be strongly related to depressed moods (Kendall and Watson, 1989). Thus, while this proposition expects that underemployment will be positively related to all three forms of psychological distress, underemployment may have the strongest positive relationship with depressed mood.

10. Work involvement will have significant negative relationships with stress, anxiety and depressed mood.

Work involvement refers to the extent to which an employee is engaged in their job and enjoys their participation at work. Research has shown that being engaged (or highly involved in your job) can protect individuals from the onset of psychological problems (see Neff, 1985). Therefore, this study expects that individuals who are highly involved in their jobs will be less likely to experience high levels of stress, anxiety and depressed mood than their counterparts who report low levels of work involvement.

11. *Job stress will have significant positive relationships with levels of global stress, anxiety and depressed mood.*

Job stress can be defined as a subjective appraisal of a work condition, where the demands of the work environment are perceived to challenge the ability of the employee to meet those demands. The bulk of the organizational stress literature focuses on stress originating from within the workplace (or job stress), and few studies have examined both job stress and global stress simultaneously. Two exceptions to this trend are found in the work of Leong et al. (1996) and Rahim and Psenicka (1996). In both articles the authors provide compelling evidence that the relationship between global stress and other psychological or physical aspects of employee health is playing "catch-up" to the much more established literature on job stress. Yet for some time evidence has existed that job stress spills-over into global levels of stress (e.g., Holt, 1983). This study proposes that job stress may also play a significant role in spilling over into levels of anxiety and depressed mood, based on the logic that stressors in the work environment can have a profound affect on the mental health of employees (Perez and Wilkerson, 1998).

6.1.2.2 Individual-Organizational Interface Antecedent Propositions

In terms of work/non-work interface antecedents role overload and work-family conflict have been consistently linked with both increased levels of job stress and global stress (e.g., Cook and Rousseau, 1984; Duxbury et al., 1989; Higgins et al., 1992; Kanter, 1977).

12. Work to family conflict will have a stronger (positive) relationship with stress, anxiety and depressed mood than family to work conflict.

The cumulative effects of strains in the work and non-work spheres of life are generally believed to spillover into the other life realm (Bacharach et al., 1991; Duxbury and Higgins, 1994; Gutek et al., 1991). There is considerable evidence to suggest that work interferes with non-work events (work to family conflict), more than non-work events interfere with work endeavours (family to work conflict) (Barnett and Marshall, 1992; Kinicki et al., 1996; Matsui et al., 1995; O'Driscoll et al., 1992). This proposition is supported by the work of Swanson et al. (1988) who found that work to family conflict increased levels of global stress and had a direct positive relationship with depression. The theoretical justification for such a finding involves the notion that we hold our family time as precious and scarce, and if work is consistently interfering with our time and family we are more susceptible to becoming stressed, anxious and depressed. Therefore, this study proposes that work to family conflict will have a stronger association with stress, anxiety and depressed mood than family to work conflict.

13. Role overload will have significant positive relationships with stress, anxiety and depressed mood.

The most compelling evidence of a relationship between psychological distress variables and variables traditionally studied in the work and family literature involves role overload. Role overload is said to exist when the total demands on time and energy associated with the prescribed activities and multiple roles are too great to perform the roles adequately or comfortably (Higgins et al., 1992). Role overload has been associated with increased psychological strain (O'Driscoll and Beehr, 1994), mental ill-health (Travers

and Cooper, 1993), increased depression (Schaubroek et al., 1992), and increased anxiety (Abramis, 1994). Thus, previous research has found evidence of a direct positive relationship between role overload and this study's three central variables. We are, however, not aware of any study that has simultaneously examined the impact of role overload on stress, anxiety and depressed mood.

Some of the strongest evidence linking psychological distress with role overload has come from a recent study by Kinicki et al. (1996). In that study, the authors found that role overload was strongly positively related to psychiatric symptoms and called upon future research to include role overload in studies of occupational health. The authors believed that interventions aimed at reducing psychological strain in the workplace should focus on the problems surrounding role overload. Due to this evidence this study proposes that role overload will have significant positive relationships with stress, anxiety and depressed mood.

6.1.2.3 Organizational Antecedent Propositions

Propositions have been developed for the organizational antecedents examined in this study, including: organizational culture, organizational support, the flexibility of work, and work expectations.

14a. An organizational culture supportive of personal life will have significant negative relationships with employee stress, anxiety and depressed mood.

Proposition 14a is based on the notion that organizational cultures which support personal life, inherently value the non-work lives of their employees (Spector et al., 1988). Organizations that have family friendly policies, for example, have been shown to

decrease levels of work-family conflict and stress (Duxbury and Higgins, 1994). If

employees perceive that their organization is supportive of their personal lives, this study

proposes that they are less likely to experience stress, anxiety or depressed moods, in

comparison to employees who do not perceive that their organizational culture supports

their personal life.

14b. An organizational culture that encourages turnover will have significantly positive relationships with employee stress, anxiety and depressed mood.

Proposition 14b is based on research which suggests that organizational cultures

with high levels of turnover are likely to effect employees through increased psychological

distress (Clegg, 1983). High levels of turnover have been linked to increased stress due

to perceptions of job insecurity (Greenhalgh and Rosenblatt, 1984). This study proposes

that employees who perceive their organizational culture encourages turnover are more

likely to experience high levels of stress, anxiety and depressed mood, in comparison to

employees who do not perceive that their organizational culture encourages turnover.

14c. An organizational culture that encourages long hours will have significant positive relationships with employee stress, anxiety and depressed mood.

Proposition 14c examines the impact of employee perceptions of an organizational

culture that encourages long hours on levels of employee stress, anxiety and depressed

mood. When long hours become the organizational cultural norm, employee well-being

has been shown to dramatically decrease (see Spector et al., 1988). Long work hours

have been linked to increased feelings of role overload and stress (Duxbury and Higgins,

1994). Therefore, this study proposes that employees who perceive their organizational

culture encourages long hours are more likely to suffer from higher levels of stress, anxiety

and depressed mood than employees who do not perceive that their organizational culture encourages long hours.

14d. An organizational culture that rewards performance will have significant negative relationships with employee stress, anxiety and depressed mood.

Proposition 14d is supported by the work of Karasek and Theorell (1990) and Cole (1999) who found that low reward (recognition) environments produce an atmosphere of injustice, in which an employee's mental health may be challenged. Therefore, this study expects employees who perceive their organizational culture rewards performance will have significantly lower levels of stress, anxiety and depressed mood than their counterparts who perceive the organizational culture does not reward performance. It should also be noted that organizational cultures offering little reward or recognition have been specifically linked to the onset of depression (Karasek and Theorell, 1990) due to the onset of fatalistic feelings (i.e., the perception that "my work doesn't matter to anyone here"). Therefore, employees who perceive that their organizational culture does not reward performance may be particularly susceptible to the onset of depressed mood.

15. Organizational support will have statistically significant negative relationships with stress, anxiety and depressed mood.

The extent to which an organization is perceived to be responsive to employee opinions, ideas, acknowledges the input and effort of employees and is supportive of their non-work roles are all believed to negatively correlate with employee stress levels (Eisenberger et al., 1986). While Eisenberger and colleagues only examined the impact of organizational support on stress, we believe that the authors underlying theory will hold true for anxiety and depressed mood. That is, perceived organizational support can be

considered a gauge on the extent to which an employee feels valued in the firm and supported in their effort to be productive and juggle work and non-work roles. This study proposes that non-supportive work environments will be positively correlated with anxiety and depressed mood, as the lack of organizational support may lead to excessive worrying (e.g., about how to juggle work and family roles), or a sense of helplessness (e.g., feeling caught between incompatible time demands), thus contributing directly to anxiety and depressed mood symptomatology.

16. A work environment that is perceived to be highly flexible will have significant negative relationships with employee stress, anxiety and depressed mood.

The flexibility of work refers to the extent to which an employee can modify their work schedule to accommodate personal/family needs or preferences (Billings and Moos, 1982). Thomas and Ganster (1995) found that flexible work schedules increase employee perceptions of control over their work. The increased control that comes with more flexibility in the work schedule has been found to reduce stress levels (Spector et al., 1988). This study extends the logic that the flexibility of work reduces stress, and due to the established relationship with control, proposes that the flexibility of work will have significant negative relationships with anxiety and depressed mood, in addition to stress.

17. High work expectations will have significantly positive relationships with stress, anxiety and depressed mood.

Work expectations refer to the norms established within the firm with regards to the performance of work duties (Cook and Rousseau, 1984). The work norms of an organization, including the perceived expectations of peers and supervisors has been found to influence workplace behaviour; including the extension of working hours, and a

perceived inability to take holiday time (Cook and Rousseau, 1984; Lindstrom, 1994). In turn, high work expectations have been associated with global stress (Remodet and Hansson, 1991), anxiety (Carayon-Saintford, 1992; Landsbergis et al., 1992), and general mental ill-health (Cooper and Kelly, 1993). This study, therefore, proposes that high work expectations will have significant positive relationships with stress, anxiety and depressed mood.

6.1.3 Consequence Propositions

Propositions have been developed for both individual and organizational consequences.

6.1.3.1 Individual Consequence Propositions

Propositions have been developed for the individual consequences of life satisfaction, job satisfaction, physical health and burnout.

18. Life satisfaction will have significant negative relationships with stress, anxiety and depressed mood.

Life satisfaction has been defined as the degree to which individuals judge the quality of their lives favourably and has been equated with general happinness (Judge et al., 1994). Individuals who report high levels of life satisfaction are happy with their lives and have been found to report low levels of anxiety and depression (Headey et al., 1993). Psychological distress of any sort is likely to reduce self-reports of happinness (or life satisfaction) as these disorders take a major toll on an individual's life (e.g., reduced ability to function at work, strained marital relations, etc.). Therefore, this study proposes that life satisfaction will have significant negative relationships with stress, anxiety and depressed

mood.

19. Job satisfaction will have significant negative relationships with stress, anxiety and depressed mood.

20. Burnout will have significant positive relationships with stress, anxiety and depressed mood.

The organizational literature has focussed on job satisfaction and burnout to the relative exclusion of all other outcomes in stress research (Kinicki et al., 1996). There is ample evidence to suggest that excessive stress decreases employee job satisfaction (e.g., Endler and Parker, 1989; Murphy et al., 1992), and sustained levels of stress have also been shown to be an important precursor to the onset of burnout (e.g., Maslach and Jackson, 1986; Lee and Ashforth, 1996). There is no reason to believe that the results from the organizational literature will not be duplicated in this study. However, we caution that other individual consequences have been largely neglected in previous organizational research, and thus the relative importance of job satisfaction and burnout may be called into question with the assessment of additional variables from other research areas.

21. Physical health will have significant negative relationships with stress, anxiety and depressed mood.

Psychological and medical research has suggested for some time that prolonged episodes of psychological strain (including stress, anxiety and depressed mood) may weaken the immune system and make individuals more susceptible to physical health problems (e.g., Israel et al., 1989; Hendrix et al., 1995). It has been suggested by some researchers that stress plays a role in all forms of physical illness (e.g., Smith and Siwolop, 1988), and such an assertion is consistent with the view that the mind and body are

inseparably related when it comes to mental and physical health. For instance, stress is believed to be an aggravating factor in the onset of physical illness (e.g., gastro-intestinal problems). In addition, stress is believed to aggravate the original physical symptoms once a person is already ill (as individuals may feel "stressed" that they are ill). The most widely researched health consequences associated with psychological distress are arguably gastro-intestinal problems and cardiovascular disease (Murphy, 1991; Smith and Siwolop, 1988). For these reasons, this study proposes that physical health will have significant negative relationships with stress, anxiety and depressed mood.

6.1.3.2 Organizational Consequence Propositions

Propositions have been developed for the organizational consequences of productivity, organizational commitment, and absenteeism.

22a. Positive productivity self-reports will have negative relationships with stress, anxiety and depressed mood.

22b. Negative productivity self-reports will have positive relationships with stress, anxiety and depressed mood.

Perceived productivity refers to the subjective perception of an employee regarding his/her work output (Major, 1990). Research has existed for some time that indicates that high levels of psychological distress are strongly associated with lower levels of job performance (Friend, 1982; Jones et al., 1988; Spector et al., 1988). In particular, productivity has been negatively associated with elevated levels of stress and prolonged periods of anxiety and depressed mood (Matteson and Ivancevich, 1987; Perez and Wilkerson, 1998). These research results support the logic that when employees are grappling with mental illness, they may reduce effort expenditure (decreasing their

productivity), as they are forced to expend energy on the emotional state itself (Abramson et al., 1989). This study, therefore, expects self-reports of positive productivity to have significant negative relationships with stress, anxiety and depressed mood, while self-reports of negative productivity are proposed to have significant positive relationships with the three forms of psychological distress under study.

23. *Organizational commitment will have significant negative relationships with stress, anxiety and depressed mood.*

Organizational commitment refers to the loyalty and dedication and individual feels toward their organization or job (Roskies et al., 1993). There is evidence that individuals experiencing high levels of psychological distress will become less concerned with organizational goals, as their effort expenditure shifts toward taking care of themselves (Abramson et al., 1989; Roskies et al., 1993). While psychological distress may make an employee less committed to organizational goals (in the short term), long-term dedication or commitment may be more of a function of how the organization responds to the employee experiencing the distress (Perez and Wilkerson, 1998). This study proposes that individuals experiencing high levels of stress, anxiety and depressed mood are less likely to be committed to the organization than individuals experiencing lower levels of psychological distress.

24. *Absenteeism will have significant positive relationships with stress, anxiety and depressed mood.*

Absenteeism has long been associated with psychological problems. In fact, a slow withdrawal from the work environment has been found to characterize some forms of psychological distress (e.g., depression) (Kivimaki et al, 1997). In a Canadian context,

Perez and Wilkerson's (1998) findings that 26% (of 2,515 respondents) took time off for mental or emotional distress, compared with 20% who weere absent because of physical health or injury, provides compelling evidence of the impact of psychological problems on absenteeism. For these reasons, this study proposees that absenteeism will have significant positive relationships with stress, anxiety and •depressed mood.

6.1.4 Gender Difference Proposition

25. Women (controlling for job type) will report significantly~ higher levels of stress, anxiety and depressed mood than men.

As noted earlier, the psychological literature provides compelling statistical evidence that would suggest that women are more likeBy to suffer from psychological problems than men. For instance, in Canada, depression rates are two and a half times greater among women than men (Perez and Wilkerson, 1998). Pugliesi (1995) found that gender exerted the strongest affect on stress differential, resulting in women being almost twice as likely as men to suffer from chronic stress. Finailly, Bourne (1990) and Kendall and Watson (1989) both suggest that women are two and ai half times more likely to suffer from anxiety related psychological problems. For these re÷asons this study proposes that women (controlling for job-type) will report significantly highner levels of stress, anxiety and depressed mood than men.

We make the above proposition with some degree of caution for two primary reasons. First, in many of the organizational studies examining stress and depressed mood (very few have examined anxiety), job type was not used as a controlling variable in examining gender differences. Hence, the reader of prsevious research findings is left

with unresolved questions - primarily 'Is it the job or the gender of the employee that is causing the psychological distress?'. Second, and perhaps more importantly, the results of previous studies may be by-products of gender stereotypes in our culture. How we define and measure psychological illness is socially determined, with female traits traditionally assigned a higher rate of illness status. Gender stereotypes play a strong role in our perceptions of mental health and illness. For instance, there is evidence that it may be less culturally 'acceptable' for a man to admit to suffering from psychological problems, as gender stereotypes have portrayed men as strong and able to withstand the toughest of challenges on their own (including psychological problems) (Kimmel, 1993). By contrast, women are stereotyped as caring, nurturing individuals who are expected to talk about their problems as well as help others cope with problems, without fear of betraying cultural norms (Barnes and Maple, 1992). Thus, the statistical results from self-report surveys may tell us more about gender norms and expectations in our society than they do about the true number of men and women grappling with psychological problems.

7. Methodology

7.1 Sample

The sample chosen for our study comes from a large financial service organization with a workforce of approximately 44,000 employees across Canada. The firm's willingness to participate in an employee wellness study stems from an upper management concern for their employees' health and well-being and its subsequent impact on the 'bottom line'.

The questionnaire survey was randomly distributed to 10% of the entire workforce (questionnaire measures are presented in Appendix A). All levels and geographic regions of the company were included in the sample. Of the 4,400 surveys sent out to potential respondents 2,507 were returned and useable, for a response rate of 57%. Demographic tests revealed that the sample closely mirrors the population in terms of a proportionate representation by job type (hierarchical position), gender, and geographic region.

7.1.1 Demographic Attributes of the Sample

A closer look at the sample provides important demographic information. Demographic comparisons between men and women in the sample are of particular interest as gender differences play a central role in the study's objectives. To help interpret the data all demographic variables were analysed to determine if any statistically significant gender differences could be observed. This step was performed in order to determine if any confound variables existed between gender and the demographic variables (e.g., education, etc.) that may be important in interpreting the results. Gender differences are examined controlling for job-type, as job-type has been shown to be a

surrogate measure for a number of other important demographic variables including education, income, and role autonomy (Duxbury and Higgins, 1994).

If no significant differences were found with respect to a variable, the aggregated findings are presented in this section. Where gender differences did exist data is provided for both male and female components of the sample.

The sample consisted of 622 males and 1858 females, while 27 persons did not report their sex. The mean age of respondents was 39.6 years, with an average tenure of 13.9 years with the firm.

The average number of children per employee was 1.4, and the majority of respondents both male (64.5%) and female (68.9%) were parents. No significant gender differences emerged (controlling for job type) with respect to the number of children, the age of the children or parental status.

As can be seen from the data in Table 4, the majority of both male and female respondents were married.

TABLE 4

Marital Status of Respondents

Never Married	15%
Married/Common Law	75%
Separated	1%
Divorced	9%

No significant gender differences existed with respect to age, tenure with the firm, or marital status.

In terms of geographic representation, 27.2% of the sample worked in an rural setting, while 72.8% worked in urban regions. Data on where the respondents worked is presented in Table 5.

TABLE 5

Geographic Distribution of the Sample

Atlantic Canada	6.8%
Quebec	15.2%
Ontario (outside Toronto)	24.7%
Metro Toronto	20.3%
Manitoba	4.4%
Saskatchewan	3.5%
Alberta and NWT	8.4%
BC and Yukon	16.5%

The geographic representation of the sample (shown in Table 5) closely mirrors that of the total population, as almost half of the sample (45%) was working in Ontario.

Table 6 presents the education levels of the sample as a whole, and the breakdown for men and women (controlling for job-type). There are significant gender differences in the education data with a greater number of men in the sample reporting higher levels of formal education than women.

Table 6

Educational Background of Respondents

Education Level	Sample	Men	Women
High School	37.2%	16.1%	43.9%
Some College/Univ.	25.6%	19.7%	27.5%
College Diploma	13.4%	14.6%	13.0%
Univ. Degree	19.1%	37.6%	13.2%
Post-Grad. Degree	4.7%	11.9%	2.4%

(significant gender differences (controlling for job type): $F = 37.3$, $p < .01$, $df = 4$)

Two-thirds of the men in the sample possessed a college diploma, university degree or multiple degrees. In sharp contrast, over 71% of women in the sample did not possess a college diploma or university degree, with the largest group of women (44% of the sample) possessing a high school education (compared to only 16% of men who had a high school education).

The business units of the sample firm included branch/regional offices, card centres, operations/processing centres, and headquarters. These four categories represented the vast majority of the firm's business. For the other miscellaneous business units that responded to the survey, we created an "other" category (e.g., mass marketing). The distribution of the sample in terms of business unit is presented in Table 7. The majority of the sample worked in branch or regional offices.

Table 7

Business Unit Distribution of the Sample

Business Unit	Sample	Men	Women
Branch/Regional Offices	60.3%	50.9%	63.4%
Card Centres	10.2%	7.6%	11.0%
Processing Centres	10.9%	9.4%	11.4%
Head Office	14.6%	27.9%	10.3%
Other	4.0%	4.2%	3.9%

(significant gender differences (controlling for job type): $F = 145.7$, $p < .01$, $df = 4$)

Significant gender differences were found with respect to business unit distribution, with women in the sample being more likely than men to be employed in branch or regional offices (i.e., front-line service workers), but less likely to work at head office. Again, it should be noted that the business unit distribution as a whole is very similar to that reported for the total company.

Perhaps the most obvious gender differences in the sample can be found with respect to compensation band. The sample firm has essentially six compensation bands ranging from trainee through to executive. Table 8 shows the sample distribution in terms of compensation band.

TABLE 8

Compensation Band (Job Type) of Respondents

Band	Sample	Men	Women
Trainee	0.2%	0.2%	0.2%
Level 1	41.1%	12.3%	51.0%
Level 2	24.5%	18.4%	26.3%
Level 3	24.6%	43.2%	18.2%
Level 4	8.4%	22.2%	3.8%
Executive	1.3%	3.7%	0.5%

(significant gender differences: $F = 24.73$, $p < .01$, $df = 5$)

Most women in the sample firm are employed in the lowest paying compensation bands. The number of women at higher compensation bands steadily drops, while conversely, the number of men at higher levels of compensation grows steadily until level three. It should be noted that the compensation band data appears to be consistent with the education data. That is, with men reporting higher levels of formal education it is not surprising to find that more men than women occupy higher compensation band jobs. The finding of significant gender differences across the compensation bands reinforces the need to include job-type as the control variable in testing for gender differences within the objectives of the study.

A similar finding was made with respect to supervisory duties. While 42.5% of men reported supervising other employees only 21.9% of women reported supervisory duties.

7.1.2 Sample Description

From the demographic attributes, we gain some understanding of the sample characteristics. The sample employed in this study is largely female (nearly three-quarters), and married with children. Almost half of the respondents are employed in Ontario, and most (62.8%) have high school or limited amounts of college or university education (but hold no degree or diploma).

However, significant gender differences (controlling for job type) were found to exist in the sample with males being more highly educated than their female counterparts. Most of the sample were front-line workers, employed in branch offices, but males were found to be significantly more likely (controlling for job type) to work in at head office. Not surprisingly, given the above information, women were primarily in the lowest compensation bands, while the majority of men were in compensation levels three and four (out of five in ascending order). In addition, due to job type differences, men were more likely to supervise employees than women.

In addition to the demographic data, the means of the study's key variables (presented in Appendix B) shed further insight into the sample characteristics. Worthy of note, the sample scored, on average, relatively high in terms of perceived control (3.71), positive affectivity (4.03), perceptions of underemployment (3.83), organizational commitment (3.72), and physical health (3.50), while scoring relatively low in work to family conflict (1.98), and negative productivity (2.32) (i.e., on average, reported few negative productivity problems). The remaining variables in the study possessed mean scores between 2.5 and 3.5 (on a five-point scale), indicating, on average, moderate variable

scores.

Significant gender differences (controlling for job type) emerged for five of the study's primary variables (see Appendix B for the means of these variables controlling for job type). Women reported higher levels of anxiety and depression, on average, than men. In addition, women, on average, scored higher on negative affectivity, role overload, and family to work conflict.

The picture of the sample that emerges from this analysis is one that is made up largely of female front-line service workers, who are married with children. Most of the sample lives in Ontario and has high school or limited amounts of college or university education. In addition, the sample perceived itself, on average, to be in control of its work situation, and showed a high propensity for positive affectivity (i.e., on average, the sample reported strong levels of positive engagement in their work environment, including general happiness, high energy, and mental interest and alertness). While, on average, the sample perceived themselves to be underemployed, they remained highly committed to the organization. In terms of gender differences (controlling for job type) the women in the sample were, on average, more likely to report high levels of negative affect states including anxiety, depressed mood and negative affectivity. In addition women, on average, reported a more difficult time juggling role demands and reported higher levels of family to work conflict than their male counterparts (controlling for job type).

There are three primary implications of the sample description for this research. First, the sample is largely female, and therefore, the need to control for gender differences in the findings is of paramount importance. Second, men and women in the

sample possess significantly different job types. This finding reinforces the need to additionally control for job type confounds when examining gender differences in the sample. Finally, the sample is largely comprised of front-line service workers. Previous research (e.g., Babin and Boles, 1998) has found that role overload has a stronger negative impact on employee well-being for female service providers in comparison to their male counterparts. This study examines if the work of Babin and Boles (1998) surrounding the differential impact of role overload on the well-being of female service providers extends itself in an examination of stress, anxiety and depressed mood (while controlling for job type differences).

7.2 Method

The research method was based on a questionnaire survey consisting of scaled items and demographic questions. The survey allowed us to collect valuable information using well-established psychometrics and organizationally sound measures. The measures used to test the model are discussed below.

7.3 Measures

As with any survey study, the validity and reliability of the results is largely dependent upon the strength of the measures contained in the questionnaire. We have selected well established measures from both the psychological and organizational literatures to ensure high construct validity (the questions used in this study can be found in Appendix A). Tabachnick and Fidell (1989) argue that a Cronbach alpha of greater than 0.60 provides an acceptable degree of reliability for construct measures. The measures utilized in our questionnaire are most logically discussed in order of the study's objectives.

7.3.1 Measures of Stress, Anxiety and Depressed Mood

The study's first objective is to estimate the prevalence of employees experiencing high levels of stress, anxiety and depressed mood. Once having accomplished this goal we will also be interested in exploring the relationships between stress, anxiety and depressed mood.

In choosing our measures of stress, anxiety and depressed mood we were cognisant of the fact that there is wide agreement in the psychological literature that short symptom scales can be especially useful for screening out mild forms of psychological distress (see Bedford et al., 1976; Goldberg, 1972; Wing et al., 1974). Warr et al. (1979) argued that short scales that are easily completed by unsophisticated respondents which are known to be psychometrically acceptable, are of particular value to the psychological researcher.

In measuring stress, in particular, we were particularly aware of previous criticisms (e.g., Schonfeld, 1992) of overly inclusive stress scales that included the working conditions that were suspected of provoking the distress. Thus, we ensured that work stress was treated as a separate construct (an antecedent) from global stress. In addition, the frequency as well as the source of the distress should be included in any measure of psychological distress (Schonfeld, 1992).

Although our study is not longitudinal, we incorporated the aspect of frequency into the questionnaire by phrasing the distress scale questions in the following manner: "How often in the last three months have you experienced: x".

Table 9 lists the measures of psychological distress utilized in our questionnaire.

Also included on this table is a reference for a previous study verifying the scales' internal

validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 9

Measures of Psychological Distress

Construct	Measure	Supporting Study	Cronbach α
Stress	PSS - 9 items	Cohen et al., 1983	0.84
Anxiety	SCL-90 - 8 items	Heaney et al., 1995b	0.82
Depressed Mood	DMS - 6 items	Moos et al., 1988	0.83

Global stress was measured using Cohen et al.'s (1983) Perceived Stress Scale

(PSS). The PSS scale that was used is a nine item measure that requires respondents to

indicate the frequency within the last three months that they have experienced different

feelings of distress using a five point Likert-type scale. The PSS was designed to measure

perceived levels of global stress and includes questions designed to determine the extent

to which one's life situation has been unpredictable, uncontrollable and burdensome

(Cohen et al., 1983). PSS scores were obtained by reversing the scores on the positive

items and calculating a summed average. The higher the score on this measure, the

greater the level of global stress. Cohen et al. (1983) reported Cronbach alpha

coefficients ranging from 0.84 to 0.86, indicating a relatively high level of internal

consistency. This study obtained a Cronbach alpha of 0.84 for the PSS.

Anxiety was measured using an eight item symptom scale, previously employed by

Heaney and colleagues (1995b). This measure is based on the diagnostic criteria found

in the Diagnostic and Statistical Manual of Mental Disorders (APA, 1980), and is intended as an overall indicator of the degree of anxiety a person has experienced over the last three months. The SCL-90 measure of anxiety was designed to measure how often respondents report specific physical symptoms over a three month period. Anxiety scores were obtained by calculating a summed average of the eight symptom measure. The higher the score on this measure, the greater the level of global anxiety. Heaney et al. (1995b) reported Cronbach coefficients for this measure ranging from 0.71 to 0.77. This study obtained a Cronbach alpha of .82.

Depressed mood was measured using the Depressed Mood Scale (DMS), which is a sub-scale of the Health and Daily Living Form (see Moos et al., 1988). The DMS is a six item scale that requires respondents to indicate the frequency within the last three months that they have experienced various symptoms associated with clinical depression. Depressed mood scores were obtained by calculating a summed average of the six symptom measure. The higher the score on this measure, the greater the level of depressive symptomatology. Moos et al. (1988) reported Cronbach alpha coefficients ranging from 0.67 to 0.69 for this scale. This study obtained a much higher Cronbach alpha of 0.83 for the DMS.

7.3.2 Antecedent Measures

The second objective of the study is to identify the individual, individual-organizational interface and organizational antecedents that may contribute to high levels of stress, anxiety and depressed mood.

7.3.2.1 Individual Antecedent Measures

The individual antecedents that were measured included perceived control, positive and negative affectivity, and perceptions of job security, mobility, underemployment, work involvement, and job stress. Table 10 lists the individual antecedent measures utilized in our questionnaire. Also included on this table is a reference for a previous study verifying the scales' internal validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 10

Individual Antecedent Measures

Construct	Measure	Supporting Study	Cronbach α
Perceived Control	6 items	Pearlin, 1975	0.75
Positive/Negative Affectivity	8 items	Kendall and Watson, 1989	0.66 / 0.65
Job Security	2 items	Gay et al., 1971	n/a
Mobility	1 item	Cammann et al., 1979	n/a
Underemployment	1 item	n/a	n/a
Work Involvement	3 items	Lodahl and Kehner, 1965	0.68
Job Stress	5 items	Rizzo et al., 1970	0.85

Perceived control was assessed using Pearlin's (1975) six item measure. This measure allows for an assessment of the degree to which a respondent is likely to feel in control of a situation. The measure uses a five point Likert-type scale with four of the six items being negatively phrased. The perceived control score was determined by calculating a summed average of the six items (with reverse scoring on the positive questions). A low score represents a person with a low degree of perceived control, while a high score is representative of an individual with a high degree of perceived control.

Pearlin (1975) has reported Cronbach alpha coefficients from 0.78 to 0.84. This study obtained a Cronbach alpha of 0.75 for Pearlin's measure of perceived control.

The second individual antecedent measured in our study was positive and negative affectivity. Unlike perceived control, which can be considered a single continuum construct, affectivity is two distinctly different constructs. We used a shortened version of Kendall and Watson's (1989) scales, and measured positive and negative affectivity with four items respectively. Positive and negative affectivity scores were calculated by a summed average. High positive affectivity scores reveal that the respondent is highly affected by "positive" external events or circumstances. A high negative affectivity score reveals that a respondent is highly affected by "negative" external events or circumstances. It is possible for an individual to have both high positive affectivity and high negative affectivity, or any other combination, as the two items are separate constructs. Kendall and Watson's (1989) full scale has reported consistently high Cronbach alpha coefficients ranging from 0.81 to 0.85. This study obtained a Cronbach alpha of 0.66 and 0.65 for our shortened version of Kendall and Watson's (1989) affectivity scales, which is still within an acceptable range of reliability (Tabachnick and Fidell, 1989).

Perceptions of job security were measured by a two item construct based on the work of Gay et al. (1971). The measures ask respondents how worried they feel about their future in the organization and the future of their colleagues. A summed average of these two questions was used to judge respondent's perceptions of job security. Low scores indicate that respondents perceive that their jobs are secure. This study obtained a Cronbach alpha of 0.79 for this scale, but caution that such a number may not be overly

reliable as the scale consisted of only two items.

Perceptions of mobility were measured by one item that asked respondents how easy they believed it would be to find another job with the same pay and benefits. The question was designed from the work of Camman et al. (1979), whose Michigan Organizational Assessment Questionnaire included aspects of perceived mobility. A high score on the five point Likert scale used in this question represents high (positive) perceptions of mobility. As we used a single item measure, Cronbach alpha's could not be calculated.

Perceptions of underemployment were also measured using a one item construct, developed for this study. Respondents were asked how they would assess their competency/skill level with respect to their present job on a five point Likert-type scale, where a 1 indicated that their current skills were "developing" to meet the needs of their current job, a 3 indicated that the respondent perceived that their skills met the requirements of their current job, and a 5 reflected the view that employees' skills exceeded the requirements of their current job. A low score represents strong perceptions of underemployment. As this is a single item measure we are unable to report on the reliability or validity of the scale.

Work involvement is conceptualized as a psychological response to one's current work role or job, the degree to which a person identifies psychologically with the job, and the importance of the job to the person's self-image and self-esteem (Lodahl and Kehner, 1965). The questions used a five point Likert-type scale, and work involvement was calculated as the summed average of item scores. Higher scores indicate greater levels

of work involvement. The short form of Lodahl and Kehner's (1965) scale (three items) was used in our survey and has reported Cronbach alpha's ranging from 0.77 to 0.83. This study obtained a Cronbach alpha of 0.68 for our modified measure of work involvement.

Job stress, unlike our independent variable of global stress is specific to the organizational environment. Organizational researchers have been isolating occupational stress from general life stress for some time (see Holt, 1983; Rizzo et al., 1970). We selected the five item job stress scale first introduced by Rizzo et al. (1970). The scale uses a five point Likert-type scale to identify the degree to which respondents find their jobs to be stressful. Job stress was calculated as the summed average of item scores. High scores on this measure represent a high degree of work stress. Rizzo et al. (1970) reported Cronbach alpha coefficients ranging from 0.83 to 0.87 for their scale. This study obtained a Cronbach alpha of 0.85 for Rizzo et al.'s (1970) job stress scale.

7.3.2.2 Individual-Organizational Interface Antecedent Measures

The interface between the individual and the organization was measured using three constructs: role overload, work to family conflict, and family to work conflict. Table 11 lists the individual-organizational interface antecedent measures utilized in our questionnaire. Also included on this table is a reference for a study verifying the scales' internal validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 11

Individual-Organizational Interface Antecedent Measures

Construct	Measure	Supporting Study	Cronbach α
Role Overload	5 items	Bohen and Viveros-Long, 1981	0.88
Work to Family Conflict	4 items	Gutek et al., 1991	0.87
Family to Work Conflict	4 items	Gutek et al., 1991	0.82

Work-family conflict, as defined by Kahn et al. (1964) is a form of inter-role conflict in which role pressures from work and family domains are mutually incompatible in some respect. That is, participation in the work (or family) role is made more difficult by virtue of participation in the family (or work) role. Role overload exists when the total demands on time and energy associated with the prescribed activities and multiple roles are too great to perform the roles adequately or comfortably. Work to family conflict refers to the extent to which work activities interfere with the performance of family responsibilities. Similarly, family to work conflict refers to the extent to which family related activities interfere with the performance of work responsibilities (Duxbury et al., 1991).

Five items were used to measure role overload, and four items were used to measure work to family and family to work conflict. Each construct is measured using a five point Likert-type scale, and is scored by a summed average of individual items. Negatively phrased questions are reversed scored. In all cases, high scores represent strong perceptions of overload or conflict. The scales we have adopted to measure the three constructs have reported Cronbach alphas in the range of 0.80 to 0.85 (Bohen and Viveros-Long, 1981; Gutek et al., 1991). This study obtained a Cronbach alpha for role

overload of 0.88; for work to family conflict of 0.87; and for family to work conflict of 0.82.

7.3.2.3 Organizational Antecedent Measures

The organizational antecedents examined in this study included organizational culture, organizational support, flexibility of work and work expectations. Table 12 lists the organizational antecedent measures utilized in our questionnaire. Also included on this table is a reference for a study verifying the scales' internal validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 12

Organizational Antecedent Measures

Construct	Measure	Supporting Study	Cronbach α
Organizational Culture	11 items	Newman, 1977	0.72
Organizational Support	7 items	Eisenberger et al., 1986	0.77
Flexibility of Work	7 items	Duxbury et al., 1991	0.80
Work Expectations	2 items	Cook and Rousseau, 1984	n/a

Organizational culture was measured using an eleven item measure based on the work of Newman (1977). Organizational culture was measured using a five point Likert scale. Reverse scoring was employed for negatively phrased questions. High scores mean that the respondent strongly perceives the organizational culture to possess certain traits (i.e., supportive of personal life, encourages turnover, encourages long hours, rewards performance). Newman (1977) reported Cronbach alpha coefficients ranging from 0.82 to 0.86 for his measure of organizational climate. This study obtained a Cronbach alpha of 0.72 for Newman's scale of organizational culture.

Organizational support is a measure derived by Eisenberger et al. (1986) to examine the extent to which the organization is supportive of employee opinions and ideas, and acknowledges the inputs and efforts made by the employee. Organizational support was calculated by summed average of individual items (with reverse scoring on negatively phrased questions). High scores represented perceptions of a supportive work environment. Eisenberger et al. (1986) reported Cronbach alpha coefficients ranging from 0.84 to 0.89 for their organizational support scale. This study obtained a Cronbach alpha of 0.77 for this measure.

Flexibility of work was measured using a seven item measure developed by Duxbury et al. (1991). Flexibility of work was operationalized by measuring the degree to which an individual is constrained into working within a fixed time schedule. Flexibility was measured in terms of rigidity in varying work hours, varying work location (i.e., working at home), taking holidays when desired, taking time off for training, interrupting the work day for personal or family reasons and arranging work schedules to meet personal and family commitments. The measure uses a five point Likert-type scale, and flexibility of work was calculated by summed average of the seven items. A high score represents a very flexible work environment. Duxbury et al. (1991) reported a Cronbach alpha of 0.82 for their measure of flexibility of work. This study obtained a Cronbach alpha of 0.80 for this measure.

Finally, work expectations were measured using a two item measure based on the work of Cook and Rousseau (1984). Work expectations refer to the norms established within the firm with regards to the performance of work duties (Cook and Rousseau, 1984).

Specifically, respondents were asked the extent to which their peers expect a person in a position such as theirs to (a) take on work-related duties and responsibilities even though these activities may interfere with leisure time, and (b) finish job related tasks by working extra hours or bringing work home whenever necessary. The work expectation questions utilized a five point Likert-type scale, and work expectations were calculated by summed average of the two item measure. A high score on this measure reflects high expectations for the accomplishment of work outside regular working hours. This study obtained a Cronbach alpha of 0.86 for our modified measure of Cook and Rousseau's (1984) work expectations, but again caution that such a finding has less significance when dealing with a two item measure.

7.3.3 Outcome (Consequence) Measures

The third objective of the study is to determine the individual and organizational consequences associated with high stress, anxiety and depressed mood.

7.3.3.1 Individual Outcome Measures

Life satisfaction, job satisfaction, physical health and burnout were used to assess the individual consequences of stress, anxiety and depressed mood. Table 13 lists the individual outcome measures utilized in our questionnaire. Also included on this table is a reference for a study verifying the scales' internal validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 13

Individual Outcome Measures

Construct	Measure	Supporting Study	Cronbach α
Life Satisfaction	SWLS - 5 items	Diener et al., 1985	0.87
Job Satisfaction	8 items	Quinn and Shepard, 1974	0.80
Physical Health	HDL - 2 items	Moos et al., 1988	n/a
Burnout	6 items	Maslach and Jackson, 1986	0.90

Overall satisfaction with life was measured using the five item Satisfaction with Life Scale (SWLS) (Diener et al., 1985). The SWLS is a Likert-type scale where a respondent rates his/her agreement with five statements of how satisfied s/he is with his/her life. The SWLS should not be confused with scales that measure social desirability (e.g., satisfaction with size of house, number of cars, etc.), but instead is a global measure of how satisfied respondents feel when they judge the quality of their lives. SWLS scores were calculated by taking a summed average of the five items, where higher scores indicated greater levels of overall satisfaction with life. Diener et al. (1985) factor analysed their scale to confirm its unidimensional nature and reported Cronbach alpha coefficients of 0.87. This study also obtained a Cronbach alpha of 0.87 for the SWLS.

Job satisfaction is the degree to which employees have a positive, affective orientation toward their job and work environment (Quinn and Shepard, 1974). Job satisfaction can be measured either globally (measures referring to general levels of satisfaction) or dimensionally (measures referring to satisfaction with specific facets of the job and work environment). This study adopted the facet-specific measure of job satisfaction developed by Quinn and Shepard (1974). Respondents were asked to

indicate how satisfied they were with their job in general, their pay, their work hours, their work schedule and their work tasks using a five point Likert-type scale (where 1 = very dissatisfied, and 5 = very satisfied). Job satisfaction was calculated as the summed average of item scores, with higher scores on this measure representing greater levels of job satisfaction. Quinn and Shepard (1974) reported a Cronbach alpha coefficient of 0.84 for their job satisfaction scale. This study obtained a Cronbach alpha of 0.80.

The two single item questions used in this study to measure physical health were drawn from the Health and Daily Living Form (Moos et al., 1988). The first question asked respondents on a five point Likert-type scale how they would rate their physical health over the last three months. The second question asked respondents how many days they were unable to work or carry out their usual work activities because of health problems. Because physical health is being measured by two, non-related single item questions, Cronbach alpha coefficients could not be calculated. However previous studies (e.g., Moos et al., 1988), have found that these measures of physical health significantly correlate with physical health assessments conducted by a physician.

Burnout was measured by a six item scale based on the work of Maslach and Jackson (1986). While their Burnout Inventory is a far more extensive measure of the construct, the six item measure employed in this study includes aspects of emotional exhaustion, depersonalization and reduced personal accomplishment. The six items are measured on a five point Likert-type scale. Burnout scores are calculated by taking a summed average of the six items. The higher the score, the more likely the respondent is exhibiting symptoms representative of being burned-out. This study obtained a

Cronbach alpha of 0.90 for our shortened version of the Burnout Inventory.

7.3.3.2 Organizational Outcome Measures

The organizational outcomes were examined through respondent self-reports of productivity, organizational commitment, and absenteeism. Table 14 lists the organizational outcome measures utilized in our questionnaire. Also included on this table is a reference for a study verifying the scales' internal validity and reliability, and the Cronbach alpha obtained for the measure in this study.

Table 14

Organizational Outcome Measures

Construct	Measure	Supporting Study	Cronbach α
Positive Productivity	4 items	Pierce et al., 1989	0.66
Negative Productivity	5 items	Pierce et al., 1989	0.68
Commitment	9 items	Mowday et al., 1979	0.87
Absenteeism	4 items	n/a	n/a

Perceptions of productivity were measured using Pierce et al.'s (1989) nine item measure. This measure contains two sub-scales which separately assess positive and negative productivity. Positive productivity can be defined as the degree to which an employee is energized, motivated, and eager to achieve organizational goals. Negative productivity, on the other hand, refers to the extent to which internal or external stresses and strains negatively impact upon the attainment of organizational goals (Pierce et al., 1989). Pierce et al.'s (1989) measure was designed to determine the extent to which organizational factors were perceived (by the employee) to have negatively or positively affected their daily productivity. The items are measured using a five point Likert-type

scale that asks respondents how often during the last three months various occurrences had affected their productivity. An example question, of positive productivity, asks, "Did you feel encouraged to come up with new/better ways of doing things?". An example question, of negative productivity, asks, "Did the stresses and strains from working long hours reduce your productivity?". The scales allow respondents to provide answers ranging from never to more than once a day. Positive and negative productivity scores were calculated by taking the summed average of questions. This study obtained a Cronbach alpha of 0.66 for positive productivity and 0.68 for negative productivity.

Commitment to the organization was measured using Mowday et al.'s (1979) nine item scale. Commitment refers to the loyalty an individual has to the organization and his/her job. Mowday et al. (1979) indicated that work commitment was characterized by three factors: acceptance of the organization's values, willingness to exert effort on behalf of the organization, and a strong desire to remain an employee of the organization. This scale is considered to be very reliable as its development was based on research carried out over a nine year period with employees from widely divergent organizations (Mowday et al., 1979). A five point Likert-type scale was used, and commitment scores were calculated as a summed average of item measures. High scores represent greater commitment to the organization. Cronbach alpha coefficients reported in the literature have ranged from 0.82 to 0.93 with a median of 0.90 (Ibid). This study obtained a Cronbach alpha of 0.87 for Mowday et al.'s (1979) measure of organizational commitment.

Absenteeism was operationalized using a measure developed by Duxbury et al. (1991). This measure assesses the number of days in the past three months that the

respondent was absent from work due to poor physical health, family-related needs, self-related needs (absence due to emotional or mental fatigue), and absences without any reason other than the respondent "didn't feel like going to work that day". The sum of these items allowed us to determine the total number of absent days in a three month period, as well as the days absent due to each of the above causes. The number of days absent obtained from the survey instrument correlate to the number of days absent using company absence data (obtained through correspondence with the author).

7.3.4 Measures of Coping and Supervisor Support

The fourth objective of the study is to uncover the coping strategies most often utilized by respondents to deal with stress, anxiety and depressed mood. To accomplish this objective we included a question in the survey that asked respondents how frequently they had used nine forms of coping (as identified from the literature, see Cooper and Payne, 1988). Respondents were also given the ability to augment the strategies listed by providing additional coping strategies. The coping scales were developed specifically for the sample under study and include counselling and employee assistance programs that are organization specific (e.g., an "RSVP" anonymous telephone counselling service). Higher scores reflect greater use of the coping mechanism.

In addition, the degree of support offered by supervisors was also assessed in terms of its relationship to stress, anxiety and depressed mood. A supportive supervisor, by definition, has regard for the comfort, well-being and contribution of his/her subordinates. A "Supportive Manager" scale based on the work of Bahr (1995) (utilizing a 16 item measure) was used in this study to measure the extent of supervisor support.

Respondents were asked the extent to which they perceived that their supervisors had engaged in 16 different behaviours. Supervisor behaviours were divided into two subscales: supportive (ten items) and non-supportive (six items) categories. A five point Likert-type scale was used for responses, and the extent of supervisor support and non-support was calculated as a summed average. The measure of supportive behaviours obtained a Cronbach alpha of 0.90, while a Cronbach alpha of 0.78 was obtained for non-supportive behaviours.

7.3.5 Measures of Gender and Job Type

The fifth objective of the study was to comprehensively examine the role of gender (while controlling for job type) in all of the research questions. In the demographic portion of the questionnaire respondents were asked to provide their gender. In addition, job type was measured by asking respondents to indicate their compensation band, which is an internal organizational designation based on hierarchical level. The higher the compensation band of the employee, the higher their hierarchical level in the organization.

7.4 Data Analysis

The data analysis can also be discussed most logically in order of the study's objectives. Gender differences (controlling for job-type) were analyzed for each objective of the study. The methods used to test for gender differences (controlling for job-type) will be discussed within the context of each objective.

7.4.1 Analysis of Objective One

The first objective is to estimate the prevalence of stress, anxiety and depressed mood and to determine any interrelationships between the three variables. In order to

assess the prevalence of stress using symptom scales, threshold levels must be established. For Cohen et al.'s (1983) perceived stress scale the authors reported that due to population norms surrounding self-reports of psychological distress, 2.6 (on a 5 point scale) should be considered the level at which a person is experiencing elevated levels of stress.

There is no consensus in the literature with respect to threshold benchmarks and some authors argue that a score of 3.0 or greater can be considered the level at which employees are grappling with elevated symptoms of stress, anxiety or depressed mood on a regular basis (Heaney et al., 1995b, Moos et al., 1988). At the 3.5 level the employee is generally considered to be experiencing disruptive levels of psychological distress to such an extent that basic functioning in the workplace may be very difficult (Cohen et al., 1983; Heaney et al., 1995b; Moos et al., 1988). Due to previous research on the prevalence of chronic stress, anxiety and depressed mood in the Canadian public (e.g., CMHA, 1995), this study has adopted the 3.0 level, as the threshold level for high stress, anxiety and depressed mood.

Despite using 3.0 as the threshold level for considering respondents to be dealing with high levels of stress, anxiety and depressed mood, frequencies, at various threshold levels, and means were calculated to provide an estimate of the prevalence of stress, anxiety and depressed mood in the sample population. Examining stress, anxiety and depressed mood at the 2.6, 3.0, and 3.5 threshold levels provides a more thorough understanding of trends in the three forms of psychological distress than examining only one threshold level. Gender differences in the prevalence of stress, anxiety and

depressed mood were assessed using independent sample t-tests, controlling for job type.

7.4.2 Analysis of Objective Two

The second objective involved performing three bivariate correlations to determine the nature of the relationships between stress, anxiety and depressed mood. In addition, three separate linear regressions were performed to shed further light on the intricate relationships between stress, anxiety and depressed mood. In each case, one of stress, anxiety and depressed mood acted as the dependent variable in the regression, while the other two acted as independent variables. This analysis was performed in order to examine how much variance of one type of psychological distress could be explained by the other two forms of psychological distress. Gender differences (controlling for job type) were examined with respect to the bivariate correlations and regression analysis.

7.4.3 Analysis of Objectives Three and Four

The third and fourth objectives of the study involve examining the associations between psychological distress and the antecedents and outcomes presented in the model. Canonical correlation analysis was used to determine the nature and number of relationships between stress, anxiety and depressed mood and antecedents and outcomes. Two main canonical correlations were performed: one for antecedents, and one for outcome variables. Gender differences were assessed in the canonical procedures using a chi-square test (controlling for job type). In addition, separate canonical correlations were performed for male and female sub-samples to examine any significant gender differences (while controlling for job type).

As canonical correlation analysis formed an important component of the quantitative analysis it is appropriate to review the technique, along with its limitations. The goal of canonical correlation is to analyse the relationship between two sets of variables. Canonical correlation analysis is considered to be an appropriate statistical technique ".. if the wish (of the researcher) is to parsimoniously describe the number and nature of mutually independent relationships existing between the two sets (of variables)" (Stevens, 1996, p. 429). This technique is an appropriate match with our objectives of examining the association between psychological distress (as represented by stress, anxiety and depressed mood) and a host of antecedent and outcome variables.

Tabachnick and Fidell (1989) explain that the easiest way of understanding canonical correlation is to think in terms of multiple regression. In regression there are several variables on one side of the equation and a single variable on the other side, where the combination of variables can be thought of as a dimension among many variables that predicts a single variable. In canonical correlation, the same fundamentals hold true, except that there are several variables on both sides of the equation. Canonical correlation produces multiple linear combinations that require interpretation (unlike the single combination of variables in multiple regression). While multiple regression seeks the linear combination of independent variables that maximally correlate with the single dependent variable, canonical correlation seeks the linear combinations of dependent variables that maximally correlate with some linear combination of independent variables.

A researcher using canonical correlation techniques for the first time must come to terms with the different terminology used in the literature. Tabachnick and Fidell (1989,

p. 193) note, "a good deal of the difficulty with canonical correlation is due to jargon". Thus, before discussing how we used canonical correlation in the study, it is important to clarify some of the key terminology we will be using.

In canonical correlation, there are variables, then there are canonical variates, and finally there are pairs of canonical variates (Tabachnick and Fidell, 1989). Variables refers to the variables measured in the research. In our study, variables refers to the independent variables (stress, anxiety and depressed mood) and the dependent variables (the list of antecedents and outcomes derived from the literature). Canonical variates are linear combinations of variables, one combination on the independent variable side, and one combination on the dependent variable side (per set of dependent variables). These two linear combinations form a pair of canonical variates (Tabachnick and Fidell, 1989). Having discussed the most common terminology, we can move on to describe the process of canonical correlation data analysis that we employed.

The canonical correlation process is characterized first by finding the linear combinations of variables that have the maximum possible Pearson correlation coefficient. Then the process searches for a second pair of linear combinations uncorrelated with the first pair, such that the Pearson correlation coefficient between this pair is the next largest possible (Stevens, 1996). To determine how many of the possible canonical correlations indicate statistically significant relationships, a residual test procedure, identical in form to that for discriminant analysis, is used (Ibid.).

We have chosen to use canonical correlation to examine the nature and number of relationships between psychological distress and antecedents and outcomes for a

number of reasons. The first is that canonical correlation is best suited to analysing multiple independent and dependent variables simultaneously, while providing a means of determining the relative strength of one relationship in comparison with another. Secondly, had we used simple correlations we would be unable to compare and contrast the coefficients from each individual correlation test, thus making the attainment of the study's central objectives impossible. Canonical correlation allows us to compare associations across a broad spectrum of variables and is well suited to an exploratory study where the theoretical foundation involved in combining two diverse fields (management and psychology/psychiatry) is being forged.

To interpret the canonical variates there are two available devices: (1) standardized coefficients, and (2) canonical variate-variable correlations. It should be noted that both these interpretation methods are considered quite unreliable unless the n/total number of variables ratio is very large, at least 42:1 (Stevens, 1996). However, this was not an issue in our study as our canonical correlation tests involved 19 variables (16 dependent and 3 independent) for our antecedent analysis, and 10 variables (7 dependent and 3 independent) for our consequence analysis. With a sample size of 2,507 even the most conservative estimates for reliability were met.

It would be remiss to omit the limitations associated with canonical correlation. The main limitation involves potential problems in the interpretation of results. Procedures that maximize correlation do not necessarily maximize interpretation of pairs of canonical variates, "therefore a canonical solution may be mathematically eloquent but uninterpretable" (Tabachnick and Fidell, 1989, p. 195). While this criticism is certainly

true, Tabachnick and Fidell (1989) are simply pointing out that because canonical correlation analysis involves multiple linear combinations that some degree of interpretation of computer generated output is involved. Since this argument has some merit, we used standardized ratio coefficients as an additional means of determining variable importance and interpreting the results of the canonical procedures (see Thomas and Zumbo, 1996). Standardized ratio coefficients are obtained by multiplying the standardized coefficient with the degree of correlation. These standardized ratio coefficients provide a numeric weighting of each variable that allows for an assessment of that variable's relative importance to the canonical variate (linear combination) in question.

This study performed six separate canonical correlation analyses (including analyses of the entire sample, and male and female sub-samples), three for antecedents and three for outcomes. The three independent variables (stress, anxiety and depressed mood) were tested for their association with the antecedent and outcome variables reviewed in this study (shown in the a-priori model).

Special exception was made for organizational culture and perceived productivity as these constructs are multifaceted and required more sophisticated analysis. Principal component factor analysis was used to cluster related items and create factors of organizational culture and perceived productivity. Principal component factor analysis is appropriate when you have obtained measures on a number of observed variables and wish to develop a smaller number of artificial variables (called principal components) (Hatcher, 1996). Factor loadings are coefficients that allow you to interpret the factors

that are responsible for the covariation in the data (i.e., the variables that are most strongly related to the factor). Once these factor groupings (principal components) of organizational culture were established, they were entered into our canonical correlation tests. Factor analysis requires a minimum sample size of 100 respondents or five times the number of variables being analyzed (Hatcher, 1996). Once again, with this study's large sample size, this condition was met.

7.4.4 Analysis of Objective Five

The fifth objective of the study is to determine what degree of association exists between coping strategies and levels of stress, anxiety and depressed mood. Our measure of coping strategies in the survey instrument allowed for the calculation of frequencies and means, for each item in the measure, to determine which coping strategies were used most often. Mean scores were segregated by level of psychological distress to provide a more comprehensive understanding of what coping strategies were utilized by persons grappling with high levels of stress, anxiety and depressed mood (operationalized as $\geq$ 3.0 on the five point Likert scale), in comparison to their counterparts experiencing lower levels of symptomatology (operationalized as < 3.0). Gender differences in coping styles were assessed using independent sample t-tests, while controlling for job type.

Finally, three logistic regression analyses were performed to develop deeper insights into the coping strategies utilized by persons grappling with high levels of stress, anxiety and depressed mood in comparison to persons dealing with lower levels of psychological distress. The regression analysis provides a more powerful indicator of

variable relationships than examining the p values associated with mean tests. Logistic regression was chosen because the sample had been divided into two categories: those respondents exhibiting lower levels of stress, anxiety and depressed mood (i.e., scores of < 3.0), and those exhibiting higher levels of symptomatology (i.e., scores of ≥ 3.0). Thus, the dependent variables were dichotomous and made logistic regression analysis an appropriate choice.

Supervisor support was also analysed for its relationship to stress, anxiety and depressed mood. Bivariate correlations were performed for both supportive and non-supportive supervisor behaviours and stress, anxiety and depressed mood. In addition, three linear regressions were performed to gain a deeper understanding of the impact of supportive and non-supportive supervisor behaviours on stress, anxiety and depressed mood. Stress, anxiety and depressed mood were each tested as the dependent variable (in separate regressions) in order to determine how much variance in the three types of psychological distress could be explained by supportive and non-supportive supervisor behaviours.

7.4.5 Analysis of Objective Six

The sixth objective of the study was to develop a structural equation model of the key antecedents and outcomes associated with stress, anxiety and depressed mood. To accomplish this objective variables were distinguished as being "important" from the canonical correlation results through an examination of their correlations, standardized coefficients and standardized ratio coefficients. Those variables considered to be important (i.e., those that displayed strong correlations, standardized coefficients, and

standardized ratio coefficients that accounted for a significant degree of variable importance) were included in a hypothesized model of Employee Mental Health that was consistent in structure with the a-priori model of antecedents, psychological distress factors, and outcomes.

The data was analyzed using the SAS system's CALIS procedure (SAS Institute Inc., 1989), and the models tested were covariance structure models with multiple indicators for all latent constructs.

The analysis followed a two-step procedure based in part on an approach recommended by Anderson and Gerbing (1988). In the first step, confirmatory factor analysis was used to develop a measurement model that demonstrated an acceptable fit to the data. In step two, the measurement model was modified so that it came to represent the proposed theoretical (causal) model. This theoretical model was then tested and revised until a theoretically meaningful and statistically acceptable model was found. This process was repeated for the main model (involving all respondents), and separate male and female models. The path coefficients, goodness-of-fit and parsimony indices for the hypothesized, revised, and male and female models are all presented in the results section. Gender differences were examined in the structural equation modelling analysis by: (1) creating separate models of male and female mental health, and (2) examining the differences in path coefficients between the male and female models, using a chi-square test, while controlling for job type.

The structural equation modelling allowed for the inference of directions of causality between variables and provided an understanding of the dynamics between psychological

distress variables and individual and organizational antecedents and consequences. In summary, the structural equation modelling represented the third and final step, from the creation of a model from the literature, to the identification of key variables (through the canonical correlation procedures), and finally to the modelling of those key variables.

Because structural equation modelling played such a large role in the objectives and subsequent data analysis of this study, it is appropriate to review the technique in some depth, along with how it was applied in our study.

One of the most important advances in social science research in the last fifteen years has been the development of software capable of testing causal models with latent (unobserved) variables. These models have been referred to as structural equation models, covariance models, latent-variable models, and causal models with unmeasured variables (Hatcher, 1994). These models are perhaps most frequently referred to as 'LISREL-type' models as many people associate them with the LISREL program (for Linear Structural Relations). LISREL was the first widely available software that made possible the analysis of causal models with latent variables (Joreskog and Sorbom, 1989).

This study used the SAS system's CALIS procedure to test our latent variable model. This software package is arguably more user friendly and powerful than its LISREL predecessor (Hatcher, 1994).

Structural equation models consist of two components: a measurement model and the structural (or causal) model. A measurement model is a factor analytic model in which you identify the latent constructs of interest and indicate which observed variables will be used to measure each latent construct. In a measurement model you do not specify any

causal relationships between the latent constructs themselves. Instead, you allow each latent construct to covary (correlate) with every other latent construct. An analysis of the measurement model ensures that the indicator variables really are measuring the underlying constructs of interest to the study, and that the measurement model demonstrates an acceptable fit to the data. Once you have developed a measurement model that displays an acceptable fit, you are free to move on to ensure that the structural (or causal) model describes the predicted causal relationships between the constructs of central theoretical interest.

To determine goodness-of-fit for the structural equation models developed in this study Hatcher's (1994) criteria were used. Hatcher argues that the p value for the model's chi-square test should be non-significant (i.e., greater than .05, and the closer to 1.00 the better). In addition, the chi-square to degrees of freedom ratio should be less than 2. In terms of fit indices Hatcher (1994) argues for the use of the comparative fit index (CFI) and the non-normed fit index (NNFI), which should both exceed 0.9; the closer to 1.00 the better. The NNFI may be viewed "as the percentage of observed-measure covariation explained by a given measurement or structural model (compared with an overall, null model... that solely accounts for the observed measure variances)" (Anderson and Gerbing, 1988, p. 421). The NNFI has been shown to reflect better model fit (than the normed fit index (NFI)), at all sample sizes (Bentler, 1989; Anderson and Gerbing, 1988). Unlike the NFI, the NNFI may assume values below 0 and above 1 (Hatcher, 1994). Bentler's (1989) CFI is similar to the NNFI in that it provides an accurate assessment of fit regardless of sample size. In addition, the CFI tends to be more precise than the NNFI

in describing comparative model fit (Bentler, 1989).

In addition to goodness-of-fit criterion, it is also necessary to assess the parsimony of the model. In the broadest sense, the parsimony of a model refers to its simplicity. "The principal of parsimony states that, when several theoretical explanations are equally satisfactory in accounting for some phenomenon, the preferred explanation is the one that is least complicated; the one that makes the fewest assumptions" (Hatcher, 1994, p. 382). The parsimony normed fit index (PNFI) was used as it reflects both the fit and parsimony of the model simultaneously. Netemeyer et al. (1990) suggested an ad-hoc criterion of 0.6 or greater for the PNFI.

In terms of the measurement model, the absolute value of the t statistics for each factor loading and path coefficient should exceed 1.96, and the standardized factor loadings should be non trivial in size (i.e., absolute values should exceed .05). The R^2 values for the latent endogenous[2] variables should be relatively large compared to what is typically found in the literature. The distribution of the normalized residuals should be symmetrical and centred on zero, and relatively few (or no) normalized residuals should exceed 2.0 in absolute value.

The combined model should demonstrate high levels of parsimony and fit, as evidenced by the relative normed fit index (RNFI) the relative parsimony ratio (RPR) and the relative parsimony fit index (RPFI). A chi-square difference test should reveal no

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[2] An endogenous variable is one whose variability is predicted to be causally affected by other variables in the model (Hatcher, 1994). Any variable that has a straight, single-headed arrow pointing at it is an endogenous variable. On the other hand, exogenous variables are constructs that are influenced only by variables that lie outside of the causal model (Ibid). Exogenous variables do not have any straight, single-headed arrows pointing at them.

significant differences between the measurement and casual models. A finding of no

significant differences provides support for the nomological validity of the theoretical model

(Anderson and Gerbing, 1988). However, a significant difference between the chi-square

for the measurement and causal models shows that the causal model fails to successfully

account for the observed covariances between the "F" variables (latent constructs) in the

structural portion of the model (Hatcher, 1994). The above criteria represent an "ideal fit"

and need not all be met in order to have an "acceptable" degree of fit. In particular,

"requiring that the model's chi-square be non-significant is an excessively strict

requirement in most applied situations" (Hatcher, 1994, p. 340). This is because no model

is ever perfect in its representation of a given phenomenon. Therefore, as the sample size

increases, the probability of detecting even trivial divergences between the model and the

data will increase (towards 1), and the goodness-of-fit chi-square will lead to a rejection

of the model. This is why the alternative goodness-of-fit indices have been created, and

were utilized in this study.

8. Results

The results of the study are presented in order of the study's objectives. Statistically significant gender differences are discussed within each objective.

8.1 Prevalence of Stress, Anxiety and Depressed Mood

The first objective of the study is to estimate the prevalence of employees experiencing high levels of stress, anxiety and depressed mood. Each of the three psychological problems was measured with a 5 point Likert scale where 1 represented "never" experiencing a symptom of physical distress, and 5 represented "always" (with 3 representing "sometimes"). The mean scores for stress, anxiety and depressed mood in the total sample, as well as for the male and female sub-samples are provided in Table 15.

Table 15

Mean Scores for Stress, Anxiety and Depressed Mood

	Sample	Men	Women
Stress	2.63	2.51	2.66
Anxiety	2.22**	2.01	2.29
Depressed Mood	2.24**	2.05	2.30

(Gender differences (controlling for job type) for anxiety: $F = 6.79$, $p < .01$, $df = 2478$, for depressed mood: $F = 6.47$, $p < .01$, $df = 2478$)

On average, the respondents did not experience heightened levels of stress, anxiety or depressed mood. The overall sample scores for stress were significantly higher than for either anxiety ($F = 23.35$, $p < .01$, $df = 2506$) or depressed mood ($F = 91.61$, $p < .01$, $df = 2506$). This trend was consistent across the entire sample and for the sub-samples of men and women.

Even when job type was controlled for, significant gender differences emerged with respect to anxiety and depressed mood with women reporting significantly higher levels of symptomatology. The stress data, however, showed no such differences when controlling for job-type.

This study is particularly interested in employees who are experiencing heightened levels of psychological distress (operationalized as a score of ≥ 3.0 on one or more of the three psychological distress scales). To accomplish this objective it is necessary to examine the percentage of employees experiencing levels of psychological distress at various threshold levels. Table 16 provides the percentages of the sample, men and women (controlling for job-type) who are experiencing heightened levels of stress anxiety and depressed mood, using increasingly conservative cut-off criteria.

Table 16

Percentage of Men and Women Experiencing Psychological Problems at

Threshold Levels

	Score ≥ 2.6			Score ≥ 3.0			Score ≥ 3.5		
	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women
Stress	49.2%	42.5%	52.7%	23.8%	19.6%	25.5%	5.9%	4.4%	6.7%
Anxiety	28.5%	18.2%	30.2%	13.5%	8.9%	15.3%	4.9%	4.2%	5.4%
D.M.	31.7%	23.3%	33.8%	14.5%	7.9%	17.0%	5.0%	3.4%	5.9%

Table 16 presents the percentage of the sample, men, and women experiencing the three forms of psychological distress using three different threshold levels: 2.6, 3.0 and 3.5. While this study has adopted the 3.0 level to represent individuals dealing with

heightened levels of psychological distress, it is also valuable to assess the data in terms of other threshold levels (e.g., Cohen et al.'s (1983) threshold of 2.6) in order to assess trends based on severity of symptomatology.

The pattern of psychological distress that emerged from the sample was disturbing. At the 2.6 level nearly half of the sample was experiencing heightened levels of stress, and nearly one-third of the sample was experiencing heightened levels of anxiety and depressed mood. When analysing the data at the 3.0 level, the number of employees experiencing heightened levels of stress drops to nearly one quarter of the sample. Similarly, the number of respondents experiencing heightened levels of anxiety and depressed mood drops down to 13.5% and 14.5%, respectively. At the 3.5 level, the percentage of respondents grappling with stress, anxiety and depressed mood converge, with 5% to 6% of all employees reporting levels of psychological distress that would make basic functioning in the workplace burdensome.

Despite the reported gender differences with regards to mean scores, men still experienced high levels of psychological distress, particularly stress, with 42.5% of all male respondents reporting heightened levels of stress at the 2.6 level, and 23.8% reporting heightened levels of stress at the 3.0 level.

Figure 8 shows the distribution of the sample with respect to stress levels.

Figure 8

Distribution of Stress Scores for Sample
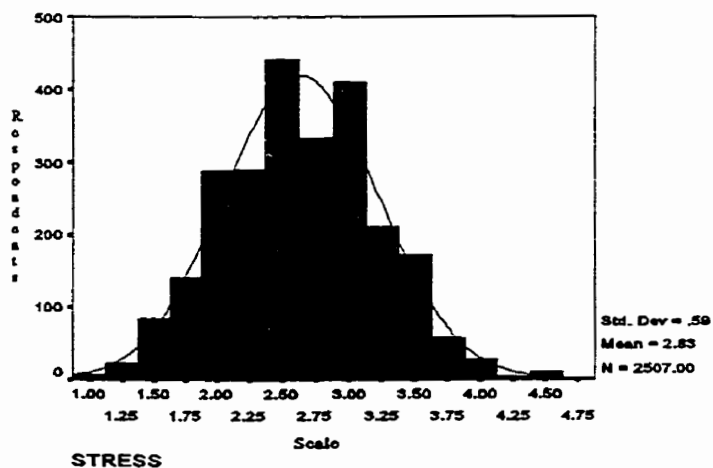
STRESS

The distribution of employees with respect to stress levels approximates the normal curve, with the majority of employees falling into the middle categories of the scale. It is important to note the large number of respondents experiencing heightened levels of stress (i.e., scores of 3.0 or greater).

Anxiety scores followed a different distribution pattern than the stress scores (see Figure 9).

Figure 9

Distribution of Anxiety Scores for Sample
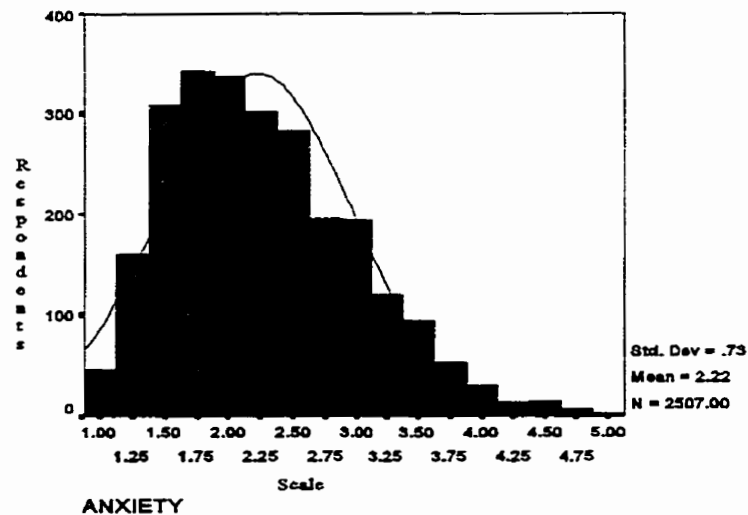
ANXIETY

The distribution of anxiety scores is skewed left, with the majority of respondents reporting lower levels of anxiety. However, nearly 28.5% of the sample experienced heightened levels of anxiety at the 2.6 level, and 14% of the sample was experiencing heightened levels of anxiety at the 3.0 level. As reported, significant gender differences emerged with respect to anxiety scores, with women reporting higher levels of symptomatology (controlling for job-type).

The distribution of the depressed mood scores is very similar to that observed with anxiety (see Figure 10).

Figure 10

Distribution of Depressed Mood Scores for Sample
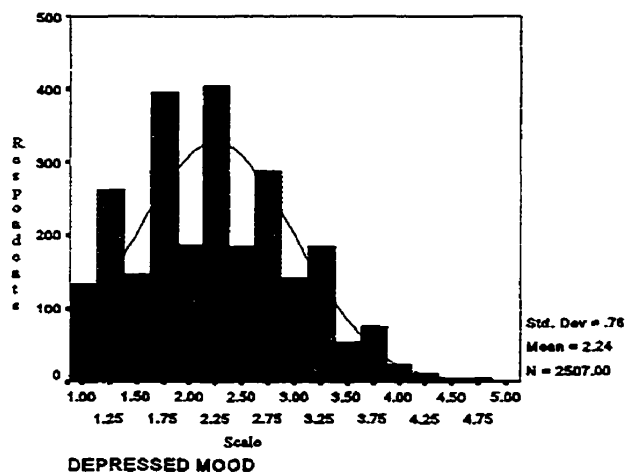
The depressed mood scores were also skewed left, but unlike the relatively consistent gradient of anxiety scores, the distribution of depressed mood is inconsistent throughout much of the scale. Using the 2.6 threshold level, depressed mood was slightly more prevalent than anxiety with nearly 32% of the sample reporting heightened levels of symptomatology. At the 3.0 threshold level, however, the incidence was essentially the same with approximately 14% of the sample reporting heightened levels of symptomatology.

When comparing the prevalence of stress, anxiety and depressed mood in the sample, a number of interesting observations can be made from the data. It appears at first glance that stress is clearly a more prevalent form of psychological distress than anxiety or depressed mood. However, when examining the three forms of psychological distress at higher threshold levels (i.e., 3.5) the number of individuals grappling with very

high levels of symptomatology is actually quite similar. This result may suggest that while more individuals report being stressed than being anxious or depressed, the number of people who are struggling with debilitating forms of stress, anxiety and depressed mood is actually quite similar.

A second observation is that stress, anxiety and depressed mood were all found to be far more prevalent in women than men. These gender differences were statistically significant for all three forms of psychological distress when job type was omitted as a controlling variable. However, with the introduction of job type as a control, the gender differences with respect to stress became statistically insignificant, while the gender differences remained significant for both anxiety and depressed mood. This finding suggests that the job type (or hierarchical level within the organization) plays an important role in determining stress level differences in men and women, but does very little to explain the gender differences that exist with respect to anxiety and depressed mood. The mean scores for men and women (controlling for job type) for all variables can be found in Appendix B.

8.2 Relationships Between Stress, Anxiety and Depressed Mood

The second objective of the study was to determine the correlations, if any, between stress, anxiety and depressed mood. Table 17 provides the Pearson correlations for the three forms of psychological distress for the total sample.

Table 17

Pearson Correlations Between Stress, Anxiety and Depressed Mood

	Stress	Anxiety	Depressed Mood
Stress	1.0		
Anxiety	0.558	1.0	
Depressed Mood	0.733	0.627	1.0

Correlations statistically significant (p < .01, two-tailed).

While all three correlations were significant (at the 99% confidence level), the strongest relationship was between stress and depressed mood (0.733). Anxiety was also strongly correlated with depressed mood (0.627), and stress shared a strong relationship with anxiety (0.558). The strong correlations provide initial evidence that these three forms of psychological distress are highly comorbid. No gender differences were found to exist (controlling for job type) in the bivariate correlations of stress, anxiety and depressed mood.

In addition to the bivariate correlations, three separate linear regressions were performed to determine the degree of association between stress, anxiety and depressed mood. The results from these regression equations are presented in Table 18.

Table 18

Regression Results for Association Between Stress, Anxiety and Depressed Mood

Independent Variables	Regression #1 - Stress (R² = 0.533)			Regression #2 - Anxiety (R² = 0.414)			Regression #3 Depressed Mood (R² = 0.60)		
	Corr.	SβC	PRC	Corr.	SβC	PRC	Corr.	SβC	PRC
Stress	1	-	-	.558	.213	.119	.733	.556	.408
Anxiety	.558	.163	.090	1	-	-	.627	.317	.200
Depressed Mood	.733	.631	.463	.627	.471	.300	1	-	-

Corr. = Bivariate correlation, SβC = Standardized Beta Coefficient, PRC = Pratt's Ratio Coefficient
Each regression equation was statistically significant at the 99% confidence interval.

Table 18 provides the bivariate correlations, standardized beta coefficients, and Pratt's ratio coefficients for each of the three forms of psychological distress, in separate logistic regression analyses for stress, anxiety, and depressed mood. The correlation is the bivariate correlation between the dependent variable and the other two forms of distress. The standardized beta coefficient is a measure of variable strength (and direction) in the regression equation. Finally, Pratt's ratio coefficient (PRC) is a measure of variable importance developed specifically for estimating variable importance in regression equations (see Thomas et al., 1998). The PRC is obtained by multiplying the bivariate correlation with the standardized beta coefficient for each variable. The sum of the PRC indices in a regression is equal to the R^2 for that regression.

The R^2 values for all three regressions can be considered quite strong. These values allow for an assessment of the amount of variance explained in each form of psychological distress. For instance, 36% of the variance in depressed mood can be explained using only two variables: stress and anxiety. Similarly, 28% of the variance in

stress can be explained by anxiety and depressed mood. Finally, 17% of the variance in anxiety can be explained by stress and depressed mood.

The percentage of variance explained by the forms of psychological distress also provides additional insights into the degree of comorbidity between stress, anxiety and depressed mood. Depressed mood emerged as the most comorbid form of psychological distress. Stress can also be considered highly comorbid, and while anxiety emerged as the least comorbid of the three forms of psychological distress (i.e., the form of psychological distress most likely to be influenced by factors other than stress and depressed mood). However, the R^2 value still provides strong support for the interrelationships between anxiety, and stress and depressed mood.

The regression analyses also reinforce the bivariate correlation findings. The strongest PRC's involve the relationship between stress and depressed mood. With stress as the dependent variable, depressed mood had a PRC of .463, compared with anxiety at .09. In other words, depressed mood accounted for .463 out of a total R2 of .553, suggesting its relationship to stress is far more important than that of anxiety. With depressed mood as the dependent variable, stress had a PRC of .408, compared with anxiety at .20. Thus, the relationship between stress and depressed mood is strong and appears to be reciprocal in nature. Only the relationship between anxiety, as a dependent variable, and depressed mood as an independent variable (PRC of .30) came close to the PRC's involving stress and depressed mood.

It should also be noted that no significant gender differences (controlling for job type) emerged with respect to the relationships between stress, anxiety and depressed

mood in the above regressions.

8.3 Analysis of Antecedent Variables

The third objective of the study was to identify the individual, interface, and organizational antecedents that are associated with high levels of stress, anxiety and depressed mood. To accomplish this objective canonical correlation analysis was performed to determine the number and nature of the relationships between stress, anxiety and depressed mood and antecedent factors.

Before performing the canonical analysis, organizational culture was factor analysed to determine its component parts. Four factors emerged with respect to organizational culture, and these are listed in Table 19. The factor loadings and corresponding variable items for organizational culture are provided in Appendix C.

Table 19

Factor Analysis of Organizational Culture

Factor	Factor Name	Items
1	Culture supportive of personal life	3
2	Culture rewards performance	5
3	Culture encourages long hours	2
4	Culture encourages turnover	1

The four factors that emerged with respect to organizational culture were entered into the canonical correlation analysis as separate variables in order to determine if one aspect of organizational culture had a stronger relationship with stress, anxiety and/or depressed mood than the others. The remaining list of antecedent measures did not

require factor analysis and twenty-one variables (eighteen antecedents, including the four constructs of organizational culture) and stress, anxiety and depressed mood were included in the canonical correlation analysis. The results of the canonical correlation analysis are presented in Table 20.

Table 20

Canonical Correlation Results for Antecedent Variables

Variable	S.C.	Corr.	S.R.C.	Rank
Antecedents:				
Perceived Control	-.552	-.439	.242	2
Positive Affectivity	-.089	-.090	.008	
Negative Affectivity	.181	.165	.030	
Job Security	-.149	-.099	.015	
Underemployment	.108	.085	.009	
Mobility	-.068	-.059	.004	
Work Involvement	-.122	-.087	.011	
Job Stress	.589	.455	.268	1
Role Overload	.536	.443	.237	3
Work-Family Conflict	.213	.176	.037	
Family-Work Conflict	.139	.095	.013	
Org. Culture (Personal Life)	-.111	-.143	.016	
Org. Culture (Encourages Turnover)	.176	.141	.025	
Org. Culture (Encourages Long Hours)	.107	.100	.011	
Org. Culture (Rewards Performance)	-.118	-.106	.013	
Org. Support	-.203	-.193	.039	
Flexibility of Work	-.146	-.139	.020	
Work Expectations	.046	.065	.003	
Psychological Distress:				
Stress	.860	.414	.356	2
Anxiety	.739	.380	.281	3
Depressed Mood	.833	.436	.363	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

The canonical correlation procedure first provides the linear combinations of variables that have the maximum possible Pearson correlation coefficient. Each combination includes both a set of standardized coefficients (denoted in Table 20 as "S.C.") and a set of canonical variate-variable correlations (denoted in Table 20 as "Corr."). This process is then repeated for a second and subsequent pairs of linear combinations that are all uncorrelated with any other and such that the Pearson correlation coefficient for each subsequent pair is the next largest possible. Table 20 presents the first set of linear combinations, as this set possessed the only statistically significant relationships (at the 95% confidence level).

To analyse variable importance the standardized coefficients and correlations must be evaluated for each variable. However, it is possible that a variable would have a strong standardized coefficient without having a strong correlation, or vice-versa. To determine variable importance it is important to achieve a comparison measure that takes both the standardized coefficient and the canonical variate-variable correlations into account. Thomas and Zumbo (1996), while discussing appropriate standardizations of discriminant coefficients, propose the use of standardized ratio coefficients to assess variable importance. The standardized ratio coefficient (denoted in Table 20 as "S.R.C.") is calculated by multiplying the canonical variate-variable correlations and the standardized coefficients. The result provides a measure of relative variable importance that takes both the correlations and standardized coefficients into account.

The data provided in Table 20 allows for an assessment of relative variable importance. In particular, job stress, perceived control and role overload emerged as the

three variables with the strongest standardized ratio coefficients. In fact, in relative terms, job stress, perceived control and role overload accounted for three-quarters of variable importance (i.e., the sum of their standardized ratio coefficients was 0.747), in the group of eighteen antecedent variables. No other variable came close to the standardized ratio coefficients of job stress, perceived control and role overload, with the next strongest variable being organizational support (with a standardized ratio coefficient of .039). It is also important to mention that none of the four factors of organizational culture emerged with a strong standardized ratio coefficient. Combining all four organizational culture standardized ratio coefficients yielded a combined coefficient of 0.065. This is worthy of note given that the average standardized ratio coefficient is $1/18 = 0.055$.

In addition to the antecedents, or independent variables, the canonical correlation procedure also provides identical information on the dependent variables in the analysis. All three forms of psychological distress had strong standardized coefficients and canonical variate correlations. While depressed mood and stress emerged with the strongest standardized ratio coefficients (at 0.363 and 0.356 respectively), anxiety also possessed a strong standardized ratio coefficient (at 0.281). Effectively, one can say that all three forms of psychological distress contributed about equally to their common canonical variate.

As noted previously, the primary function of the canonical procedure in this thesis was data reduction (i.e., employed to identify key variables for structural equation modelling). To this end, three variables, job stress, perceived control, and role overload, clearly stood out in terms of variable importance relative to the other tested antecedents.

For this reason job stress, perceived control and role overload were selected as the antecedent variables that would be subject to further analysis in the structural equation modelling procedures. The very strong standardized coefficients and canonical variate correlations of stress, anxiety and depressed mood provided compelling evidence for their inclusion in the causal modelling procedures.

It should be noted that all variables in the canonical correlation procedure were examined for gender differences (controlling for job type). Separate canonical correlation analyses were performed for men and women. The results of the male and female canonical correlations are provided in Appendix D.

In comparing the male and female canonical correlation results, only role overload emerged as having statistically significant differences while controlling for job type (chi-square = 7.42, p < .01, df = 21). The standardized ratio coefficient for role overload for men in the sample was .213, as compared to .250 for women. This resulted in role overload being considered the second most important canonical variable in the female sub-sample, while role overload was the third most important variable in the male sub-sample. Despite this gender difference (controlling for job type), job stress, role overload and perceived control remained the variables with the strongest standardized ratio coefficients, and were entered into the structural equation modelling procedures.

8.4 Analysis of Outcome Variables

The fourth objective of the study was to determine the individual and organizational consequences associated with high levels of stress, anxiety and depressed mood. Canonical correlation analysis was performed again to determine the number and nature

of the relationships between stress, anxiety and depressed mood and outcome variables. Before conducting the canonical correlation of outcome variables, perceived productivity was factor analysed into two component parts: positive productivity and negative productivity. The factor analysis and corresponding factor loadings are provided in Appendix E. The rationale for performing the factor analysis was that the perceived productivity measure contained items that would either negatively or positively influence productivity. Initial descriptive analysis proved that taking a summed average of item scores was insufficient, as negative and positive productivity can be considered two separate constructs, not ends of a continuum. With the separation of productivity into positive and negative components, eleven variables (eight outcome and three psychological distress variables were included in the canonical correlation analysis), the results of which are shown in Table 21.

Table 21

Canonical Correlation Results for Outcome Variables

Variable	S.C.	Corr.	S.R.C.	Rank
Outcomes:				
Life Satisfaction	-.352	-.392	.138	3
Job Satisfaction	-.144	-.236	.034	
Physical Health	-.344	-.408	.136	4
Burnout	.598	.562	.336	1
Positive Productivity	-.118	-.127	.015	
Negative Productivity	.564	.464	.262	2
Org. Commitment	-.121	-.223	.027	
Absenteeism	.225	.286	.064	
Psychological Distress:				
Stress	.780	.447	.349	2
Anxiety	.686	.410	.281	3
Depressed Mood	.785	.471	.370	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

The data in Table 21 allowed for the assessment of relative variable importance (this was the only set of canonical variates statistically significant at the 95% confidence level). Burnout emerged as the most prominent outcome variable with a very strong canonical variate correlation and standardized coefficient. The standardized ratio coefficient for burnout accounted for one third of relative variable importance (0.336). The second most important variable to emerge from the analysis was negative productivity, which also had strong canonical variate correlation and standardized coefficient scores (resulting in a standardized ratio coefficient of 0.262). Other variables worthy of note

included life satisfaction (with a standardized ratio coefficient of 0.138, and physical health (with a standardized ratio coefficient of 0.136).

The psychological distress variables of stress, anxiety and depressed mood also emerged from the analysis with high canonical variate correlations and standardized coefficients. Depressed mood, stress, and anxiety all made major contributions to their canonical variate (with standardized ratio coefficients of 0.370, 0.349, and 0.281, respectively).

The canonical correlation results for the outcome variables proved to be valuable as a data reduction technique. Burnout and negative productivity collectively represented nearly 60% of variable importance (as measured by the standardized ratio coefficients). While life satisfaction and physical health showed some strength in terms of canonical variate correlations and standardized coefficients, both variables standardized ratio coefficients were approximately half the relative variable importance of negative productivity. Thus, mindful of the problems of modelling too many variables in a structural equation process (see Hatcher, 1994), burnout and negative productivity were selected as outcome variables for modelling. Due to the strong canonical variate correlations and standardized coefficients of stress, anxiety and depressed mood, the decision to include all three forms of psychological distress in the causal modelling process was reinforced.

It should be noted that all variables in the canonical correlation procedure were examined for gender differences (controlling for job type). Separate canonical correlation analyses were performed for men and women. The results of the male and female canonical correlations are provided in Appendix F.

The canonical correlations involving the male and female sub-samples were very similar and possessed no significant differences when controlling for job type. Thus, the decision to include burnout and negative productivity in the structural equation modelling process was reinforced.

8.5 Coping and Supervisor Support

8.5.1 Coping Strategies

The fifth objective of the study was to uncover what coping strategies are utilized by employees dealing with high levels of a) stress, b) anxiety, and c) depressed mood. This study analysed nine forms of coping, which were measured on a five point Likert scale (where 1 = never, 3 = sometimes and 5 = often). It should be noted that only functional (or healthy) coping mechanisms were assessed in this study (as opposed to dysfunctional coping methods including alcohol abuse, etc.). Table 22 provides the mean scores for each coping strategy.

Table 22

Mean Scores for Coping Strategies

Coping Method	Sample	Men	Women
E.A.P.	1.32**	1.23	1.34
Children and Eldercare Info Service	1.11	1.08	1.11
R.S.V.P.	1.09	1.06	1.09
Professional Help	1.37**	1.29	1.39
Help from Manager	1.79**	1.64	1.84
Help from Colleagues	2.25**	1.96	2.34
Help from Family and Friends	3.19**	2.88	3.30
Exercise	3.10	3.15	3.09
Meditation	1.66	1.67	1.65

** Significant gender differences (controlling for job type) at 95% confidence level.

The most often utilized coping strategy in the sample was getting help from family and friends (a form of social support). However, even this strategy did not have a high mean score (3.19). Exercise was a close second (3.10), in terms of how employees cope with psychological distress. The sample sought help from colleagues (2.25), on average, more frequently than from their managers (1.79), which may suggest that colleagues are considered more approachable. The more formalized coping strategies such as professional help (1.37), use of the EAP (1.32), the childcare and eldercare info service (1.11), and an anonymous help service (RSVP) (1.09), were, on average, utilized infrequently.

Of the nine coping strategies analysed, use of the employee assistance plan (EAP) ($F = 39.63$, $p < .01$, $df = 2$), seeking professional help ($F = 27.72$, $p < .01$, $df = 2$), getting help from managers ($F = 25.08$, $p < .01$, $df = 2$), colleagues ($F = 17.53$, $p < .01$, $df = 2$),

and family and friends (F = 13.29, p < .01, df = 2) were all utilized significantly more often by women than by men (controlling for job type).

While comparing means provides us with some initial insights into how the sample copes with psychological distress it tells us very little about the strategies used to cope with high levels of stress, anxiety and depressed mood. The sample was therefore split into employees who were struggling to some extent with symptoms of stress anxiety and depressed mood (i.e., those who scored ≥ 3.0 on our three measures) and those who were not struggling with high levels of psychological distress (i.e., those who scored < 3.0). The purpose of dividing the sample in this fashion was to discover if certain coping strategies were utilized by individuals coping with higher levels of psychological distress that could not be detected by simply examining the sample as a whole. Table 23 provides the mean scores for each coping strategy with the sample divided on the basis of level of distress.

Table 23

Mean Scores for Coping Strategies Segregated by Level of Distress

Coping Strategy	Stress ≥ 3.0	Stress < 3.0	Anxiety ≥ 3.0	Anxiety < 3.0	D.M. ≥ 3.0	D.M. < 3.0
E.A.P.	1.49**	1.24**	1.56**	1.27**	1.57**	1.25**
Childcare and Eldercare Info Service	1.12	1.10	1.14	1.10	1.13	1.10
R.S.V.P.	1.10	1.08	1.13	1.08	1.12	1.08
Professional Help	1.60**	1.27**	1.70**	1.30**	1.70**	1.28**
Help from Manager	1.79	1.80	1.83	1.78	1.77	1.80
Help from Colleagues	2.36	2.20	2.35	2.22	2.37	2.22
Help from Family and Friends	3.30	3.14	3.35	3.16	3.29	3.17
Exercise	2.99	3.15	2.89	3.15	2.95	3.14
Meditation	1.61	1.68	1.73	1.64	1.75	1.64

** Significant differences (controlling for job type) between mean scores at 95% confidence level.
(E.A.P.: $F = 22.43$, $p < .01$, $df = 2$; Professional Help: $F = 17.88$, $p < .01$, $df = 2$)

When the coping scores were segregated on the basis of level of psychological distress two variables emerged with significant differences in their mean scores: EAP, and professional help. While using the company's EAP and seeking professional help were, on average, not strongly utilized by either group of respondents, employees who were grappling with higher degrees of psychological distress, on average, were more likely to use the company's EAP and to seek professional help than those who were experiencing lower levels of distress. This finding has intuitive appeal, as people with more severe psychological problems would likely need more formal coping methods, including those offered by an EAP or through professional help.

In terms of gender differences in coping strategies, neither men or women, on average, frequently utilize the forms of coping examined in this thesis. However, women were, on average, more likely to utilize formal coping mechanisms, including the company E.A.P. and seeking professional help, than their male counterparts. This finding lends support to the coping literature which suggests that men internalize their problems and deal with them alone, while women are more likely to ask for help and seek out the help they need (Defares et al., 1984; Heaney et al., 1995a; Vredenberg et al., 1988).

Still, with cross-sectional data the links that can be drawn between coping strategies and levels of psychological distress remain tenuous at best. To further examine the relationship between coping strategies and stress, anxiety and depressed mood, three separate logistic regressions were performed (the results are presented in Table 24).

Table 24

Logistic Regression Results for Stress, Anxiety and Depressed Mood and Coping Strategies

Coping Strategies	Regression #1 - Stress (R² = 0.102)			Regression #2 - Anxiety (R² = 0.112)			Regression #3 Depressed Mood (R² = 0.099)		
	Corr.	SβC	PRC	Corr.	SβC	PRC	Corr.	SβC	PRC
E.A.P.	-.198	-.149	.030	-.213	-.146	.031	-.205	-.153	.031
Childcare and Eldercare Info Service	-.053	-.016	.001	-.051	-.035	-.002	-.050	-.025	.001
R.S.V.P.	-.044	-.009	.000	-.092	-.029	.003	-.047	-.013	.001
Professional Help	-.216	-.180	.039	-.254	-.197	.050	-.241	-.198	.047
Help from Manager	-.027	-.085	.003	-.068	-.036	.002	-.030	-.069	.002
Help from Colleagues	-.188	-.097	.018	-.121	-.061	.007	-.101	-.073	.007
Help from Family and Friends	-.114	-.061	.007	-.144	-.086	.012	-.109	-.058	.006
Exercise	-.096	-.109	.010	-.094	-.126	.012	-.090	-.144	.013
Meditation	-.030	-.051	.002	-.044	-.020	.001	-.026	-.002	.000

Corr. = Bivariate correlation, SβC = Standardized Beta Coefficient, PRC = Pratt's Ratio Coefficient
Each regression equation was statistically significant at the 99% confidence interval.

Table 24 provides the bivariate correlations, standardized beta coefficients, and Pratt's ratio coefficients for each of the coping strategies, in separate logistic regression analyses for stress, anxiety, and depressed mood. It should be noted that Pratt's Ratio Coefficient should be used only as a guide for estimating variable importance in logistic regression, as individual PRC's do not sum to the total R^2 in logistic regression.

The results of the regression procedures provide a slightly different angle on the importance of certain coping variables. The R^2 values for all three logistic regressions

were quite low, and coupled with the PRC's indicate that respondents do not appear to be making much use of "functional" and work related coping strategies. An alternative explanation could be that the forms of coping examined in this study have very little impact on psychological distress.

All three logistic regression analyses yielded similar patterns of variable importance. For instance, seeking professional help had the strongest Pratt's ratio coefficient for stress, anxiety and depressed mood. Similarly, utilizing the firm's employee assistance plan (EAP) also yielded comparatively stronger Pratt's ratio coefficients. Conversely, help from family and friends, exercise and help from colleagues can be considered moderately important in comparison.

These results are consistent with the earlier finding of significant differences in the mean scores of professional help, and utilization of an EAP when analyzed at the two different psychological distress threshold levels. When combined with the regression findings, the results would suggest that a group of respondents exist who are grappling with high levels of stress, anxiety and depressed mood, and their scores for utilizing professional help and EAP's are elevated in comparison to the majority of the sample. An examination of frequencies and cross-tabulations (see Appendix G) confirmed this theory.

As the fifth objective of the study was to uncover what coping strategies are utilized by respondents struggling with high levels of stress, anxiety and depressed mood the use of professional help and utilization of EAP's may be considered important coping strategies despite their low mean scores across the entire sample. In addition, for persons dealing with lesser degrees of stress, anxiety and depressed mood seeking help from family and

friends, work colleagues, and exercising can be considered the most often utilized coping strategies.

However, it should be noted that with R^2 values as low as those obtained in the three logistic regressions, the coping strategies explain very little of the variance in stress, anxiety and depressed mood. While the R^2 values in the logistic regression results are low, it should also be noted that it is harder to explain variation in a binary variable than in a continuous variable. Hence, the R^2 values in logistic regression are generally lower than those found in multiple regression. Even so, the R^2 values obtained in the three logistic regressions should be considered quite low and combined with the PRC's suggest that the forms of coping strategies examined in this research, are not utilized by a large percentage of respondents, and may not influence levels of stress, anxiety and depressed mood.

8.5.2 Supervisor Support

In addition to the coping strategies examined above, this study examined the specific effects of supportive or non-supportive supervisor behaviours on stress, anxiety and depressed mood. The rationale behind examining the impact of supervisor support on psychological distress came from Jones-Johnson and Johnson (1992) who found that the lack of supervisor support was the most critical organizational variable in predicting psychosocial ill-health. Their study was supported by the earlier work of Nelson (1990) who found that the four major causes of stress could all be traced back to non-supportive supervisor behaviours.

To be consistent with previous research, supportive behaviours were separated from non-supportive supervisor behaviours and both analysed for their relationship with stress, anxiety and depressed mood. Supervisor support was analysed separately from coping strategies because unlike coping strategies, the employee is not in control of the behaviour. That is, while people can choose how to cope with psychological distress, they have very little influence over the nature of supportive or non-supportive behaviours displayed by their supervisors.

Respondents were asked to provide information on the extent of supportive or non-supportive supervisor behaviours they experienced performing their jobs. On a five point Likert scale (where 1= strongly disagree (that their supervisor exhibits a particular behaviour), and 5 = strongly agree (that the supervisor exhibits a particular behaviour)) the mean for supportive behaviours was 3.61, while the mean score for non-supportive behaviours was 3.90. This somewhat perplexing result indicates that supervisors were displaying both supportive and non-supportive behaviours, but on average, scored higher on non-supportive behaviours.

It is noteworthy to mention that no significant differences emerged regarding these mean scores for gender, but significant differences did exist for job type. Those employees employed in lower compensation bands were more likely to report lower supportive behaviours, and higher non-supportive behaviours.

The relationships between supervisor behaviours and stress, anxiety and depressed mood proved equally interesting. Table 25 provides the bivariate correlations between supportive and non-supportive supervisor behaviours and stress, anxiety and

depressed mood.

Table 25

Bivariate Correlations Between Supervisor Behaviours and Stress, Anxiety and

Depressed Mood

Supervisor Behaviour	Stress	Anxiety	D.M.
Supportive Behaviours	-.277	-.214	-.231
Non-Supportive Behaviours	.256	.226	.245

Pearson correlations significant (two-tailed) at 99% confidence level.

As one might expect, supportive supervisor behaviours were negatively correlated with levels of stress, anxiety and depressed mood. That is, the higher the supportive behaviour reported, the lower the symptomatology of stress, anxiety and depressed mood. Non-supportive behaviours, on the other hand, were positively correlated with stress, anxiety and depressed mood. That is, the higher the level of non-supportive behaviour reported, the higher the symptomatology of stress, anxiety and depressed mood. It is interesting to note that while the correlations were significant and moderately strong, non-supportive behaviours did not display significantly higher correlations with stress, anxiety and depressed mood, in comparison with supportive behaviours. This result runs counter to the finding of Nelson (1990) who suggested that non-supportive behaviours had the most profound effect on stress when compared to supportive behaviours. This study found that supportive and non-supportive supervisor behaviours have relatively equal, yet opposite correlations with stress, anxiety and depressed mood.

While correlations provide us with some initial insight into the variable relationships, regression analyses were performed on stress, anxiety and depressed mood to provide

more information on the nature of the relationship between the three forms of

psychological distress and the behaviours of supervisors. Table 26 provides the results

of the three separate linear regressions.

Table 26

**Regression Results for Stress, Anxiety and Depressed Mood and Supervisor
Behaviours**

Supervisor Behaviours	Regression #1 - Stress (R² = 0.084)			Regression #2 - Anxiety (R² = 0.057)			Regression #3 Depressed Mood (R² = 0.067)		
	Corr.	SβC	PRC	Corr.	SβC	PRC	Corr.	SβC	PRC
Supportive Behaviours	-.277	-.192	.053	-.214	-.108	.023	-.231	-.118	.027
Non-Supportive Behaviours	.256	.121	.031	.226	.151	.034	.245	.163	.040

Corr. = Bivariate correlation, SβC = Standardized Beta Coefficient, PRC = Pratt's Ratio Coefficient
Each regression equation was statistically significant at the 99% confidence interval.

Due to the low R^2 values for each of the regression equations, very little variance

in stress, anxiety or depressed mood can be explained by supportive or non-supportive

supervisor behaviours. The results presented in Table 26 utilize the same method to

analyse variable importance (i.e., Pratt's ratio coefficient) as was employed to analyse

coping strategies. The Pratt's ratio coefficients for supportive behaviours are strongest in

relation to stress, while non-supportive behaviours have stronger Pratt's coefficients for

anxiety and depressed mood. While these findings could suggest that supportive

behaviours have a stronger negative relationship with stress (than with anxiety or

depressed mood), and non-supportive behaviours have a stronger influence on persons

reporting high levels of anxiety and depressed mood, such an interpretation should be

considered speculative. Supportive and non-supportive behaviours shared similar Pratt's

ratio coefficients for stress, anxiety and depressed mood and the findings support the work

of Jones-Johnson and Johnson (1992) that supervisor behaviours (both supportive and

non-supportive) may play a role in determining employee mental health.

8.6 Structural Equation Models of Key Variables

8.6.1 The Proposed Theoretical Model

The sixth objective of the study was to develop a structural equation model of the

key variables that emerged from the canonical correlation results. The variables included

in the structural equation modelling were job stress, perceived control, role overload,

stress, anxiety, depressed mood, burnout and negative productivity. Figure 11 presents

the proposed theoretical model. The paths to be tested in the structural equation

modelling procedures are shown as single-headed arrows, while the correlations between

variables are denoted by double-headed arrows. In addition, the correlations for all

variables included in the study are presented in Appendix H.

Figure 11

Proposed Theoretical Model of Employee Mental Health
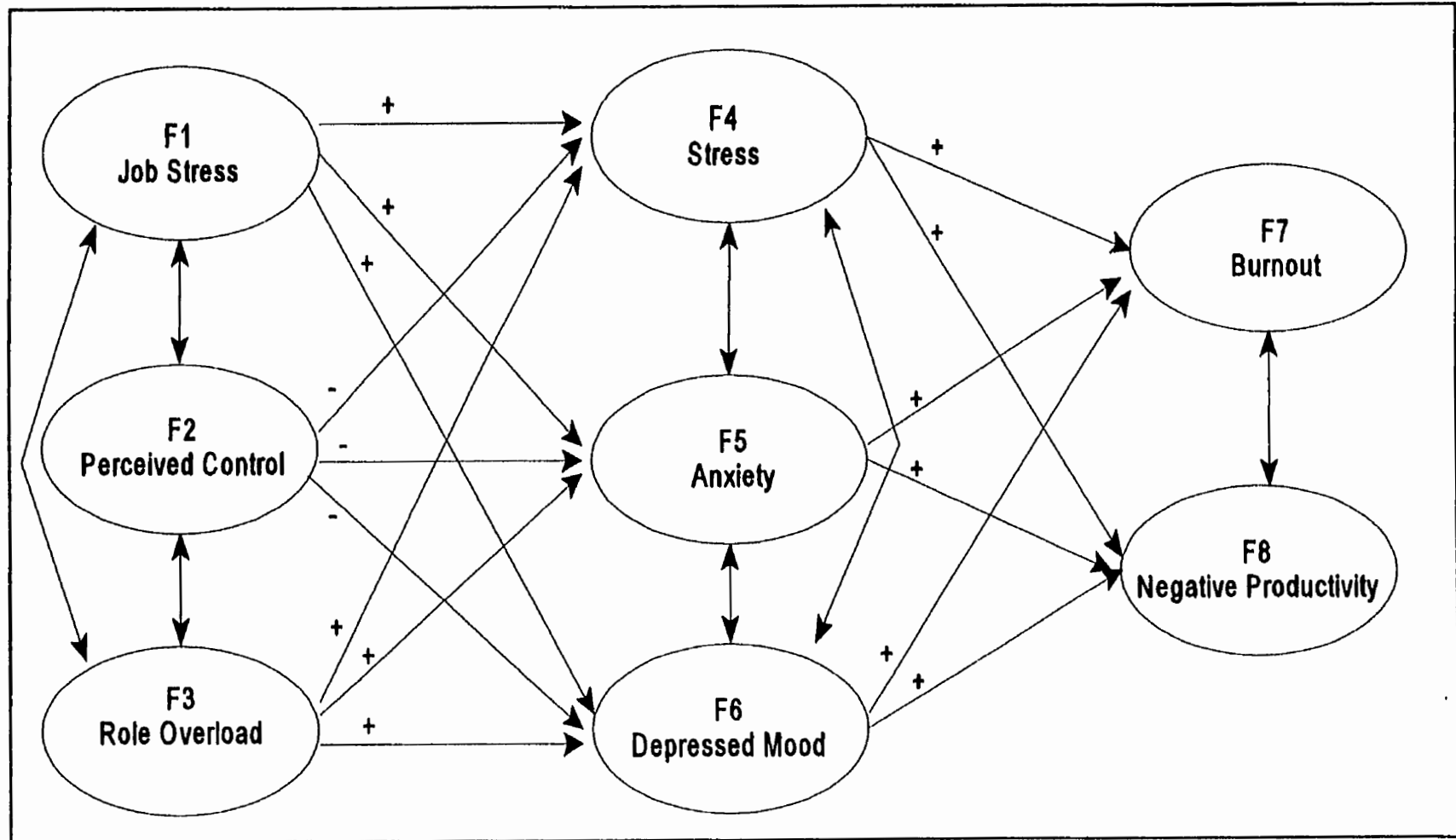
Hypothesized path coefficients appear on single-headed arrows, hypothesized correlations appear on double-headed arrows.

Figure 11 depicts the hypothesized relationships between latent constructs. The dissertation follows Bentler's (1989) convention of identifying latent variables with the letter "F" (for Factor), and labelling manifest variables with the letter "V" (for variable). As fifty manifest variables were used to measure the latent constructs, they have been omitted from Figure 11, but are labelled in Appendix A.

8.6.2 The Measurement Models

8.6.2.1 The Initial Measurement Model

In path analysis with latent variables, a measurement model describes the nature of the relationship between (a) a number of latent variables (or factors), and (b) the manifest indicator variables that measure those latent factors. The model investigated in this study consisted of eight latent variables corresponding to the eight constructs of the Employee Mental Health model (Figure 11). Each of the eight latent variables was measured by at least five manifest indicator variables.

The measurement model assessed in the first stages of this analysis was not identical to the model depicted in Figure 11, because the model in that figure posits certain unidirectional paths between latent variables. In a measurement model, a covariance is estimated to connect each latent variable with every other latent variable (Hatcher, 1994). In a figure this would be depicted by a curved, two-headed arrow connecting each F variable to every other F variable. In other words, a measurement model is equivalent to a confirmatory factor analysis model in which every latent construct is allowed to covary with every other latent construct. The confirmatory as opposed to exploratory feature of the measurement model is due to the fact that the subset of manifest variables driven by

each factor has already been established.

The measurement model in this study was estimated using the maximum likelihood method, and the chi-square value for the model was statistically significant (chi-square= 326 with 142 df, p < .01). Although a non-significant chi-square would have shown support for the model, this significant chi-square does not necessarily indicate a bad fit. The chi-square/df ratio for this model was 2.3 which is just slightly above the informal rule-of-thumb criteria that the ratio should be below 2.0 (Hatcher, 1994). Technically, when the proper assumptions are met (see Hatcher, 1994), the chi-square statistic may be used to test the null hypothesis that the model fits the data. In practice, however, the statistic is very sensitive to sample size and departures from multivariate normality, and will very often result in the rejection of a well fitting model. For this reason it has been recommended that the model chi-square statistic be used as a goodness-of-fit index, with smaller chi-square values (relative to the degrees of freedom) indicative of a better model fit (James et al., 1982; Joreskog and Sorbom, 1989). Properties of the initial measurement model are presented in Appendix I.

There were a number of other results that indicated a problem existed with the initial measurement model's fit. The pattern of large normalized residuals, parameter significance tests, and Lagrange multiplier tests revealed that five manifest indicators (V6, V20, V25, V26, and V40) appeared to be multidimensional variables, as they were causally affected by other latent variables, besides the constructs they were supposed to be affected by. For instance, V6 is a manifest indicator of perceived control (F2), however the CALIS procedure identified that this indicator, "There is really no way I can solve some of

the problems I have", was causally affected by depressed mood (F6), in addition to perceived control. V20 is a manifest indicator of stress (F4) ("Felt confident about your ability to handle your personal/family problems") that was found to be causally related to role overload (F3) in addition to stress. Similarly V25 was also a manifest indicator of stress ("Been angered because of things that happened that were outside your control") that was found to be causally related to perceived control (F2) in addition to stress. V26 is a manifest indicator variable of anxiety (F5) ("Headaches") that was found to be causally related to job stress (F1), stress (F4) and depressed mood (F5). Finally V40 is a manifest indicator variable of burnout (F7) ("Felt difficulties were piling up so high that you could not overcome them") that was found to be causally related to depressed mood (F6). For these reasons of multidimensionality these variables were eliminated from the measurement model and the model was re-estimated.

8.6.2.2 The Revised Measurement Model

The properties of the revised measurement model, including standardized loadings, reliabilities and variance extracted estimates are provided in Table 27. Again, the manifest indicator variables are labelled in Appendix A. While variables, V6, V20, V25, V26, and V40 have been eliminated from the analysis, all other manifest variables retained their same designation to avoid any confusion (i.e., the manifest indicator variables were not re-numbered). The re-estimation of the model includes eight latent constructs, and forty-five manifest variable indicators.

Table 27

Properties of the Revised Measurement Model

Construct and Indicators	Standardized Loading	Reliability	Variance Extracted Estimate
Job Stress (F1)		.845[a]	.620
V1	.755	.570	
V2	.825	.681	
V3	.765	.585	
V4	.842	.709	
V5	.742	.551	
Perceived Control (F2)		.734[a]	.488
V7	.680	.462	
V8	.777	.604	
V9	.667	.445	
V10	.663	.440	
V11	.700	.490	
Role Overload (F3)		.879[a]	.675
V12	.798	.637	
V13	.849	.721	
V14	.839	.704	
V15	.836	.699	
V16	.782	.612	
Stress (F4)		.820[a]	.484
V17	.664	.441	
V18	.774	.599	
V19	.735	.540	
V21	.681	.464	
V22	.706	.498	
V23	.584	.341	

V24	.710	.504	
Anxiety (F5)		*.812*[a]	.450
V27	.666	.444	
V28	.680	.462	
V29	.639	.408	
V30	.765	.585	
V31	.712	.507	
V32	.727	.529	
V33	.630	.397	
Depressed Mood (F6)		*.832*[a]	.550
V34	.727	.529	
V35	.710	.504	
V36	.663	.440	
V37	.784	.615	
V38	.813	.661	
V39	.739	.546	
Burnout (F7)		*.906*[a]	.728
V41	.847	.717	
V42	.824	.679	
V43	.843	.711	
V44	.869	.755	
V45	.883	.780	
Negative Productivity (F8)		*.767*[a]	.552
V46	.783	.613	
V47	.798	.637	
V48	.715	.511	
V49	.571	.326	
V50	.724	.524	

a Denotes composite reliability.

Table 27 provides the standardized factor loadings, the composite reliabilities and the reliabilities of the indicators and the variance extracted estimate for each scale. The standardized loadings are the factor loadings for each construct in the scale. The composite reliabilities are measures of internal consistency comparable to coefficient alpha (Fornell and Larcker, 1981). All eight scales demonstrated strong levels of reliability, with coefficients in excess of .70. The reliability of an indicator is defined as the square of the correlation between a latent factor and the indicator. In other words, the reliability indicates the percent of variation in the indicator that it is explained by the factor that it is supposed to measure (Long, 1983).

The final column in Table 27 provides the variance extracted estimates for each scale. This a measure of the amount of variance captured by an underlying factor in relation to the amount of variance due to measurement error (Fornell and Larcker, 1981). Fornell and Larcker (1981) suggest that it is desirable that constructs exhibit estimates of 0.50 or larger. However, Hatcher (1994) cautions that this test is quite conservative, as very often variance extracted estimates will be below 0.50 even when reliabilities are acceptable. Five of the eight latent constructs in this study demonstrated variance extracted estimates in excess of 0.50. The other three constructs, namely: perceived control (0.488), stress (0.484) and anxiety (0.450) all demonstrated variance extracted estimates close to the 0.5 level recommended by Fornell and Larcker (1981), while exhibiting strong reliabilities.

The goodness-of-fit indices for the initial and revised measurement models are presented in Table 28. This table shows that the revised measurement model displayed

values of greater than 0.9 on the non-normed fit index (NNFI) and the comparative fit index (CFI), indicative of an acceptable fit (Bentler and Bonnett, 1980; Bentler, 1989). Therefore, in combination with a chi-square to df ratio of slightly less than 2.0, and the reliability indicators described above, the revised measurement model was retained as the study's final measurement model against which other models would be compared.

Table 28

Goodness-of-fit and Parsimony Indices for the Employee Mental Health Model

Model	Combined Model							Theoretical Model		
	Chi-square	df	NFI	NNFI	CFI	PR	PNFI	RNFI	RPR	RPFI
Null Model	2322.06	186								
Initial Measurement Model	326.59	142	.889	.912	.915	.763	.678	1.0	0	0
Revised Measurement Model	249.72	128	.923	.938	.945	.688	.635	1.0	0	0
Initial Theoretical Model	298.23	138	.908	.916	.925	.742	.674	.915	.311	.285
Revised Theoretical Model #1	281.76	134	.926	.933	.929	.720	.667	.915	.321	.294
Revised Theoretical Model #2	267.99	132	.935	.944	.941	.710	.664	.937	.288	.270

Chi-square = The chi-square value associated with the model.
df = The degrees of freedom associated with the model.
NFI = Bentler and Bonnet's (1980) normed fit index, for assessing goodness-of-fit.
NNFI = Bentler and Bonnet's (1980) non-normed fit index, for assessing goodness-of-fit.
CFI = Bentler's (1989) comparative fit index, for assessing goodness-of-fit.
PR = James et al.'s (1982) parsimony ratio (calculated as the df of the model being studied / the df of the null model).
PNFI = James et al's (1982) parsimonious normed-fit index (calculated as (PR)(NFI)).
RNFI = Mulaik et al's (1989) relative normed fit index, reflects the fit in just the theoretical portion of the model.
RPR = Mulaik et al's (1989) relative parsimony ratio to determine the parsimony of the theoretical portion of the model.
RPFI = Mulaik et al.'s (1989) relative parsimony fit index to determine both fit and parsimony of the theoretical model (calculated as (RNFI)(RPR)).

8.6.3 The Theoretical Models

8.6.3.1 The Initial Theoretical Model

The theoretical model tested in this thesis is identical to the one presented in Figure 11, with the exception that the underlying manifest variables V6, V20, V25, V26, and V40 were dropped from the analysis (consistent with the revised measurement model). The analysis of this model may be described as a path analysis with latent variables (Hatcher, 1994). Goodness-of-fit indices for the initial theoretical model appear in Table 28. The NNFI and CFI were acceptable for the initial theoretical model with values in excess of 0.9. However, a review of the model's residuals revealed that the distribution of normalized residuals was asymmetrical, and that twelve of the normalized residuals were relatively large (in excess of 2.0, with three in excess of 3.0). In addition, two of the causal paths linking two latent constructs proved to be insignificant. As can be seen in Table 29, the standardized path coefficient for the path from perceived control (F2) to depressed mood was only .092, ns, and the path from stress (F4) to negative productivity (F8) was also insignificant (.089).

Table 29

Standardized Path Coefficients

Dependent Variable / Independent Variable	Theoretical Model	Revised Model #1	Revised Model #2
Negative Productivity (F8)			
Stress (F4)	.089 ns	n/a	n/a
Anxiety (F5)	.331	.352	.361
Depressed Mood (F6)	.325	.331	.352
Burnout (F7)			
Stress (F4)	.556	.569	.592
Anxiety (F5)	.555	.538	.548
Depressed Mood (F6)	.376	.370	.361
Job Stress (F1)	n/a	n/a	.627
Role Overload (F3)	n/a	n/a	.604
Stress (F4)			
Job Stress (F1)	.476	.488	.481
Perceived Control (F2)	-.236	-.249	-.253
Role Overload (F3)	.476	.465	.455
Anxiety (F5)			
Job Stress (F1)	.489	.496	.504
Perceived Control (F2)	-.275	-.280	-.289
Role Overload (F3)	.419	.424	.421
Depressed Mood (F6)			
Job Stress (F1)	.427	.449	.465
Perceived Control (F2)	.092 ns	n/a	n/a
Role Overload (F3)	.411	.407	.408

All standardized path coefficients statistically significant unless otherwise reported (p < .01).

The nomological validity of the theoretical model can be tested by performing a chi-square difference test in which the theoretical model is compared to the measurement model. A finding of no significant difference indicates that the theoretical model is successful in accounting for the observed relationships in the latent constructs (Anderson and Gerbing, 1988). If the chi-square for the measurement model is subtracted from the chi-square of the theoretical model the resulting chi-square difference value is 298.23 - 249.72 = 48.51. The degrees of freedom for the test are equal to the difference between the df for the two models (138-128 = 10). The critical chi-square statistic with 10 df is 23.21 (p < .01), and so this chi-square difference can be considered statistically significant. This finding shows that the theoretical model did not account for all the relationships between the latent constructs.

Combined, these results showed that the initial theoretical model did not provide an acceptable fit to the data. Therefore, a specification search was conducted to arrive at a better-fitting model.

8.6.3.2 Revised Theoretical Model #1

When conducting a specification search it is generally safer to drop parameters than to add new parameters when modifying models (Bentler and Chou, 1987). Thus, the first step in the specification search was to identify parameters that could be dropped from the model without significantly hurting the model's fit. Wald tests (Bentler, 1989) suggested that it was possible to delete the paths from perceived control (F2) to depressed mood (F6), and from stress (F4) to negative productivity (F8), as these paths were shown to be non-significant. These paths were therefore deleted, and the revised model #1 was then

estimated. Fit indices for the model appear in Table 28. Once again, overall goodness-of-fit indices for the model were acceptable with values on the NNFI and CFI in excess of 0.9. Table 29 shows that the path coefficients in revised model #1 were all statistically significant.

Dropping the two paths from the theoretical model can be considered acceptable only if it does not result in a significant increase in model chi-square. A significant increase would indicate that revised model #1 provided a fit that was significantly worse than the initial theoretical model. Therefore, a chi-square difference test was conducted, comparing the initial theoretical model to the revised model #1 (see Table 27 for model chi-square values).[3] The chi-square difference for this comparison was equal to 298.23 - 281.76 = 16.47, which with 4 df, was significant (p < .01, critical chi-square statistic = 13.28). In other words, the revised model #1 had a lower model chi-square than the initial theoretical model.

Having passed this hurdle, the revised theoretical model was next compared to the final measurement model to determine if it successfully accounted for the relationships between the latent constructs. The chi-square difference was calculated as 281.76 - 249.72 = 32.04, which with 6 df, was statistically significant (p < .01, critical chi-square statistic = 16.81). Once again, the model failed to provide an acceptable fit.

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[3] It is important to distinguish between model chi-square and lack of fit chi-square. When parameters are dropped (as is the case here) the model chi-square decreases, and the lack of fit chi-square increases.

8.6.3.3 Revised Theoretical Model #2

Wald test conducted during the course of analyzing revised model #1 did not reveal any additional causal paths between latent constructs that could be deleted without affecting the model's fit. The results of Lagrange multiplier tests (Bentler, 1989) were therefore reviewed in order to identify new causal paths that could be added to the model.

Lagrange multiplier tests estimated that the model chi-square for the revised model #1 could be improved with the addition of two causal paths. In addition, the lack of fit chi-square could reduced by 13.77 if these two causal paths were added to the model. The first recommended path was from job stress (F1) to burnout (F7), and the second recommended path was from role overload (F3) to burnout (F7). The addition of the first path would be consistent with the work of many authors (for a review see Lee and Ashforth, 1996) that consistent, negative job stress will, over time, lead to burnout (thus hypothesizing a positive relationship). The addition of the second path is consistent with some of the work-family literature (e.g., Greenhaus and Parasuraman, 1986) that has causally linked role overload to burnout. This research suggests that the more roles a person has to juggle the more susceptible they may be to burning out (thus, hypothesizing a positive relationship). Because the addition of these two paths can be justified on theoretical grounds, paths were added from job stress (F1) to burnout (F7), and role overload (F3) to burnout (F7). The resulting model, revised model #2, was then estimated.

Fit indices for revised model #2 are presented in Table 28. It can be seen that the fit indices (i.e., the NNFI and CFI) were not only above 0.9 but were also higher than those displayed by revised model #1 and the initial theoretical model. A chi-square difference

test comparing revised model #2 to revised model #1 revealed a significant difference value of $281.76 - 267.99 = 13.77$ (df = 2, p < .01, critical chi-square statistic = 9.21). This finding shows that the revised model #2 was significantly better than the fit provided by revised model #1, thus justifying the addition of the new paths.

Comparing revised model #2 to the final measurement model would determine whether the second revision successfully accounted for the relationships between latent constructs. The chi-square difference was calculated as $267.99 - 249.72 = 18.27$, which, with 4 df, was statistically significant (p < .01, critical chi-square statistic = 13.28), showing that the revised model #2 provided an acceptable fit.

Table 28 also presents indices that reflect the parsimony of the models that were tested. Parsimony refers to the simplicity of the model. As Hatcher (1994, p. 382) wrote, "The principal of parsimony states that, when several theoretical explanations are equally satisfactory in accounting for some phenomenon, the preferred explanation is the one that is least complicated; the one that makes the fewest assumptions". The parsimony ratio (or PR) (James et al., 1982) indicates the parsimony of the overall model, with higher values reflecting greater parsimony. The parsimonious fit-index (PNFI, James et al., 1982) is obtained by multiplying the parsimony ratio by the normed fit index (NFI), resulting in a single index that reflects the parsimony and the fit of the overall model.

These indices revealed that the revised theoretical model #2 displayed a parsimony ratio of .710, which was somewhat lower than the revised theoretical model #1 (.720) or the initial theoretical model (.742). However, these findings were more than offset by the superior fit achieved by the revised theoretical model #2, as demonstrated by the very

similar PNFI values for all theoretical models.

Table 28 also provides indices that represent the fit and parsimony in just the theoretical portion of the model; that is the part of the model that describes just the relationships between the latent variables (F variables). The relative normed-fit index, or RNFI (Mulaik et al., 1989) assesses the fit in just the theoretical portion of the model, independent of the fit of the measurement model. In the same fashion, the relative parsimony ratio (RPR) reveals the parsimony of the structural portion of the model, regardless of the parsimony of the measurement model. Finally the relative parsimonious fit index (RPFI) is obtained by multiplying the RNFI by the RPR. The RPFI indicates how well the model explains all possible relations among the F variables, from outside the data (Mulaik et al., 1989).

The RNFI indices in Table 28 show that the revised model #2 demonstrated a fit to the data (.937) that was superior to the revised theoretical model #1 (.915), due to the addition of the new paths from role overload (F3) to burnout (F7) and job stress (F1) to burnout (F7). On the other hand, the addition of these two new paths did hurt the parsimony of the revised model #2 as the RPR and RPFI were slightly lower than those exhibited by the by the simpler (although poorer fitting) revised theoretical model #1.

In sum, all of the goodness-of-fit and parsimony indices indicate that the revised theoretical model #2 should be accepted as the "final" theoretical model. Figure 12 and Table 28 display standardized path coefficients for revised model #2. It can be seen that all coefficients were significant and in the predicted direction.

Figure 12

Revised Theoretical Model #2
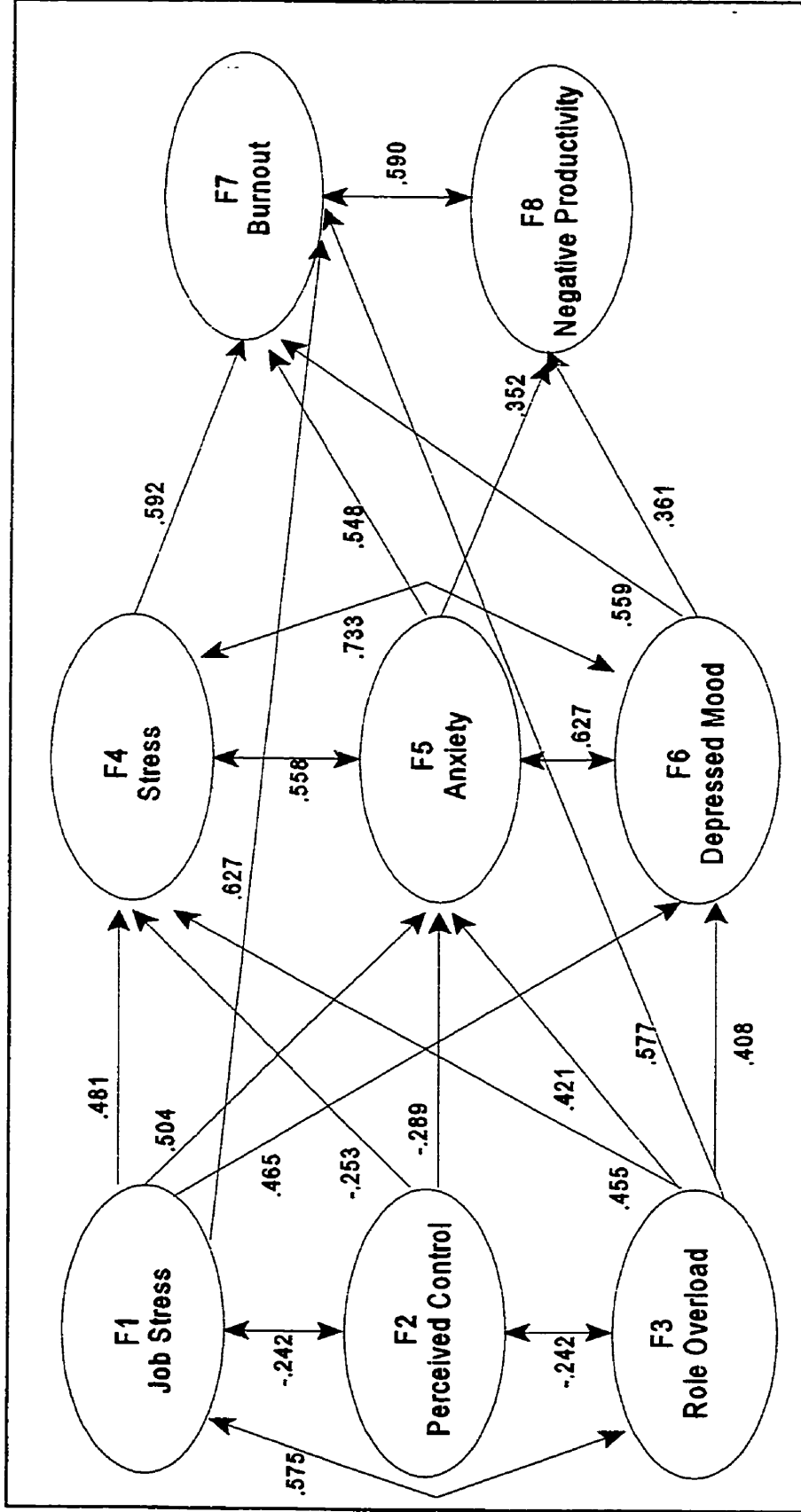
Standardized path coefficients appear on single-headed arrows; correlations appear on double-headed arrows ($p < .01$).

8.6.4 Gender Specific Theoretical Models

8.6.4.1 Male Theoretical Model

The goodness-of-fit and parsimony indices involving all latent constructs for the male model can be found in Appendix J. The paths from stress (F4) to negative productivity (F8), and perceived control (F2) to anxiety (F5) were dropped due to Wald tests (analysis presented in Appendix J). The measurement model remains the same with the manifest variables of V6, V20, V25, V26, and V40 having been dropped from the analysis due to multi-collinearity. Goodness-of-fit and parsimony indices for the male theoretical model, involving the omitted paths, appear in Table 30.

Table 30

Goodness-of-fit and Parsimony Indices for the Gender Specific Models of

Employee Mental Health

Model	Combined Model							Theoretical Model		
	Chi-square	df	NFI	NNFI	CFI	PR	PNFI	RNFI	RPR	RPFI
Final Measurement Model	249.72	128	.923	.938	.945	.688	.635	1.0	0	0
Final Theoretical Model (Total Sample)	267.99	132	.935	.944	.941	.710	.664	.937	.288	.270
Initial Theoretical Male Model	280.56	132	.888	.892	.898	.710	.630	.904	.288	.260
Revised Male Model	270.08	130	.909	.917	.925	.699	.635	.904	.294	.266
Theoretical Female Model	262.56	132	.941	.955	.963	.710	.668	.993	.306	.304

Values on the NNFI and CFI were below 0.9 for the initial male model, although just. More troubling was the jump in chi-square/df ratio, from 2.03 in the final theoretical model for the entire sample, to 2.13 for the initial male model. Combined these statistics indicate that the initial male model provides a worse fit to the data than the final theoretical model. A review of the model's residuals revealed that the distribution of normalized residuals was asymmetrical, and that three of the normalized residuals were relatively large (in excess of 2.0). In addition, two causal paths linking two latent constructs proved to be insignificant. The standardized path coefficient from role overload (F3) to anxiety (F6) was only .112, ns, and the path from role overload (F3) to depressed mood (F6), was also insignificant (.097). Table 31 lists the standardized path coefficients of the initial male model.

Table 31

Standardized Path Coefficients for Gender Specific Models

Dependent Variable / Independent Variable	Initial Male Model	Revised Male Model	Female Model
Negative Productivity (F8)			
Stress (F4)	n/a	n/a	n/a
Anxiety (F5)	.331	.337	.358
Depressed Mood (F6)	.345	.339	.383
Burnout (F7)			
Stress (F4)	.599	.613	.580
Anxiety (F5)	.530	.535	.563
Depressed Mood (F6)	.531	.546	.571
Job Stress (F1)	.643	.641	.622
Role Overload (F3)	.487	.502**	.601**
Stress (F4)			
Job Stress (F1)	.491	.498	.472
Perceived Control (F2)	-.242	-.246	-.261
Role Overload (F3)	.438	.425**	.493**
Anxiety (F5)			
Job Stress (F1)	.479	.483	.519
Perceived Control (F2)	-.258	-.281	-.295
Role Overload (F3)	.112 ns	n/a	.526**
Depressed Mood (F6)			
Job Stress (F1)	.431	.424	.491
Perceived Control (F2)	n/a	n/a	n/a
Role Overload (F3)	.097 ns	n/a	.504**

All standardized path coefficients statistically significant unless otherwise reported ($p < .01$).
** Denotes significant gender differences (controlling for job type) in the path coefficients (comparing the final male model to the female model. (All gender differences statistically significant at 99% confidence interval, with 44 df. F3-F7: chi-square = 15.86; F3-F4: chi-square = 17.03; F3-F5: chi-square = 7.70; F3-F6: chi-square = 7.95)

To test the nomological validity of the initial theoretical male model a chi-square difference test was performed, where the theoretical model under study was compared to the final measurement model. If the chi-square for the measurement model is subtracted from the chi-square of the theoretical model the resulting chi-square difference value is 280.56 - 249.72 = 30.84. The degrees of freedom for the test are equal to the difference between the $\underline{df}$ for the two models (132-128 = 4). The critical chi-square statistic with 4 $\underline{df}$ is 13.28 ($\underline{p}$ < .01), and so the chi-square difference can be considered statistically significant. This finding shows that the initial male theoretical model was unsuccessful in accounting for the relationships between the latent constructs. A specification search was conducted to arrive at a better fitting male model.

8.6.4.1.1 Revised Theoretical Male Model

In conducting the specification search for the revised male model the advice of Bentler and Chou (1987) to drop parameters before adding new parameters was followed. Wald tests confirmed that it was possible to delete the paths from role overload (F3) to anxiety (F5), and from role overload (F3) to depressed mood (F6). Lagrange multiplier tests revealed that no new paths could be added to the model without significantly hurting the model's goodness-of-fit chi-square value. Therefore, the identified paths were deleted and the revised male model was then re-estimated. Fit indices for the model appear in Table 30. The overall goodness-of-fit of the revised male theoretical model improved appreciably, with values on the NNFI and CFI in excess of 0.9.

Dropping the two paths from the revised theoretical model can be considered acceptable only if it does not result in a significant increase in model goodness-of-fit chi-

square. Therefore, a chi-square difference test was conducted, comparing the initial male model to the revised male model. The chi-square difference for this comparison was equal to 280.56 - 270.08 = 10.48, which with 2 df, was significant ($p < .01$, critical chi-square statistic = 9.21). In other words, the revised male model showed a stronger goodness-of-fit than the initial male model.

The revised male model was next compared to the final measurement model to determine if it successfully accounted for the relationships between latent constructs. The chi-square difference was calculated as 270.08 - 249.72 = 20.36, which with 2 df, was statistically significant ($p < .01$, critical chi-square statistic = 9.21), indicating that the model failed to provide an acceptable fit. However, as Wald and Lagrange multiplier tests had already concluded that no new paths could be added or dropped from the model without hurting the model's goodness-of-fit chi-square, the revised male model was retained as the final male model. It should also be noted that despite failing to pass the model chi-square test, the revised model displayed acceptable goodness-of-fit indicators, and possessed a 2.07 chi-square/df ratio, making a strong case for an acceptable fit to the data.

Table 30 also presents the indices that reflect the parsimony of the models that were tested. These indices revealed that the revised male model displayed a parsimony ratio of .699, which was somewhat lower than the initial theoretical male model (.710). Once again, these findings were more than offset by the by the improved fit achieved by the revised male theoretical model, as demonstrated by the superior PNFI value (in comparison to the initial male theoretical model). The RNFI indices in Table 30 show that the revised male model demonstrated an acceptable fit to the data. With the subtraction

of the causal paths from role overload (F3) to anxiety (F5) and depressed mood (F6), the RPR and RPFI were slightly higher than those exhibited by the by the more complex (and poorer fitting) initial theoretical model.

In combination with the goodness-of-fit tests, the parsimony tests provide additional rationale for establishing the revised male model as the "final male model". The revised male model and standardized path coefficients are presented in Figure 13.

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Figure 13

Male Model of Employee Mental Health
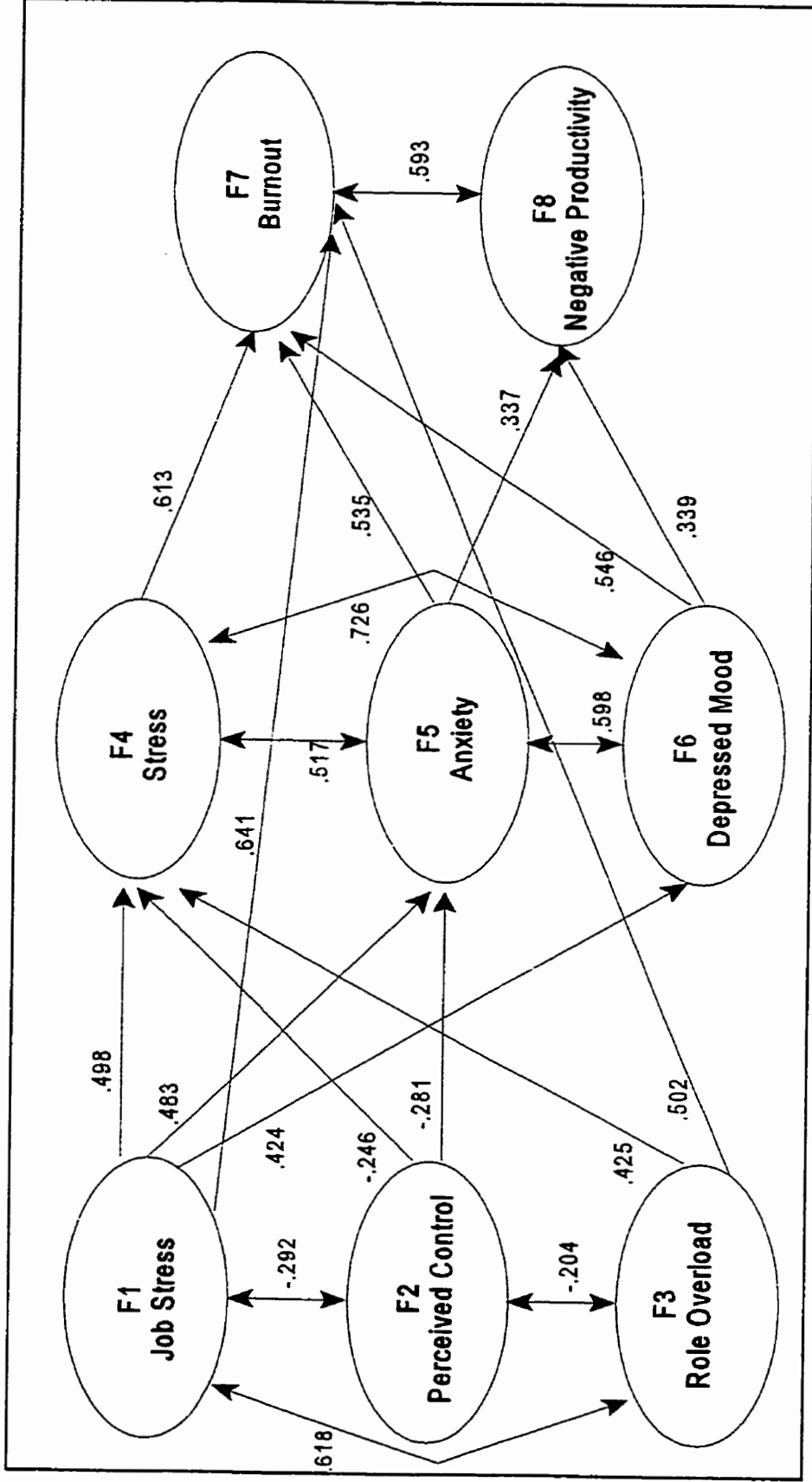
Standardized path coefficients appear on single-headed arrows; correlations appear on double-headed arrows ($p < .01$).

8.6.4.2 Female Theoretical Model

The goodness-of-fit and parsimony indices for the female model, involving all latent constructs, are presented in Appendix J. The paths from stress (F4) to negative productivity (F8), and perceived control (F2) to anxiety (F5) were dropped due to Wald tests involving the female sub-sample (see Appendix J for the analysis). The measurement model remains the same with the manifest variables of V6, V20, V25, V26, and V40 having been dropped from the analysis. Goodness-of-fit and parsimony indices for the female theoretical model, with the omittance of the above mentioned two paths, appear in Table 30.

Values on the NNFI and CFI were the strongest of any model at .955 and .963 respectively. In addition the chi-square/df ratio for the female theoretical model was 1.99, representing the only model to be under the suggested level of 2.0 (Fornell and Larcker, 1981). The female theoretical model was compared to the final measurement model in order to determine if it adequately represented the relationships between latent constructs. The model chi-square test resulted in a chi-square of 262.56 - 249.72 = 12.84, and with 4 df, was statistically insignificant ($p < .01$, critical chi-square statistic = 13.28), showing that the female model provided an adequate fit to the data. Wald and Lagrange multiplier tests confirmed that no additional paths could be added or subtracted without hurting the goodness-of-fit of the model.

Table 30 also presents the indices that reflect the parsimony of the theoretical female model. These indices revealed that the female model displayed a parsimony ratio of .710, which was identical to the final theoretical model, as no changes were made to the

model. The theoretical female model displayed the strongest PNFI value (.668), due to the high goodness-of-fit indices. The RNFI index of .993 showed that the female model possessed a very strong fit to the underlying latent constructs. Similarly, the RPR (.306) and the RPFI (.304) were the strongest of any model.

Combined, the results revealed that there was no need to revise the female model. The female model's path coefficients are presented in Table 31 and Figure 14.

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Figure 14

Female Model of Employee Mental Health
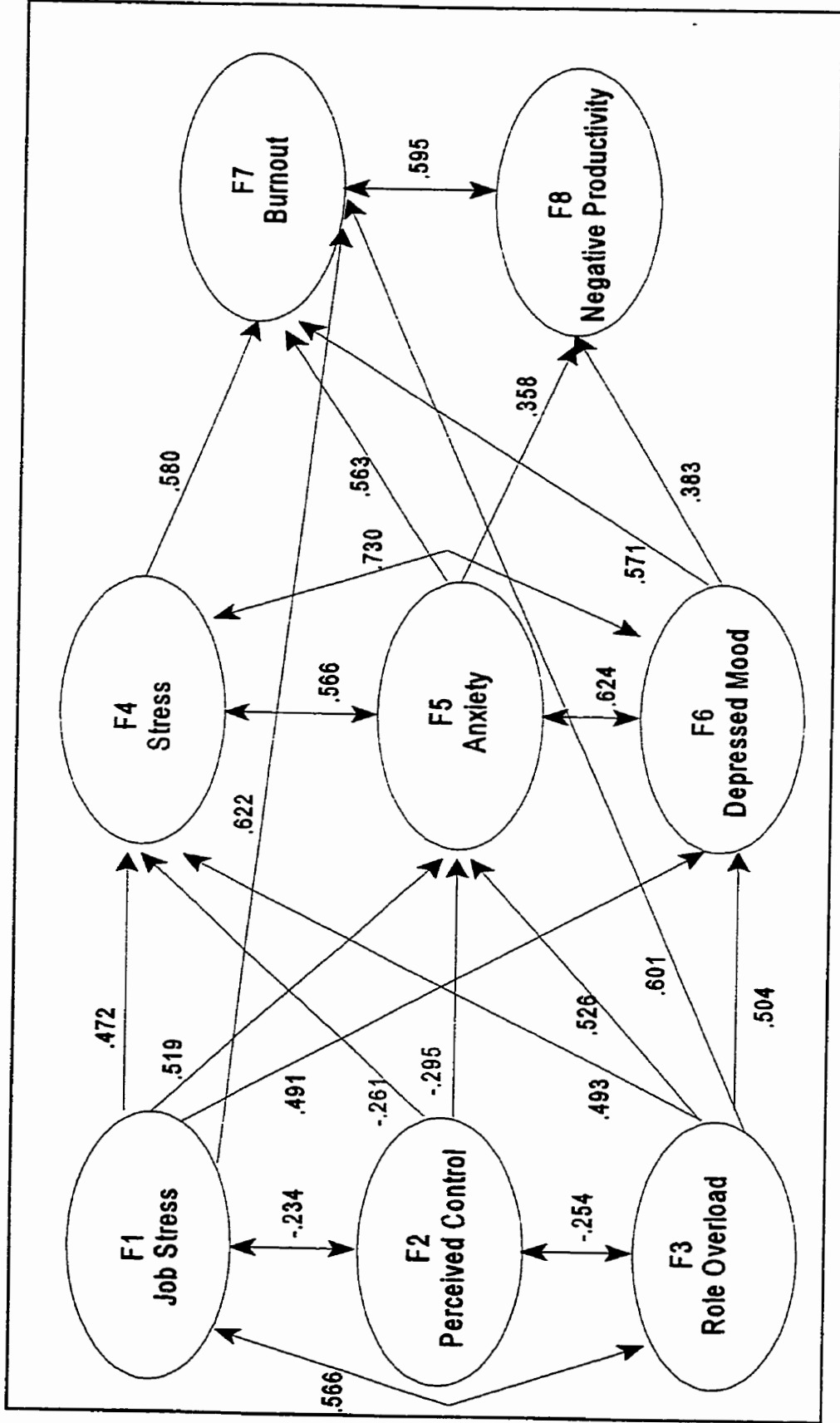
Standardized path coefficients appear on single-headed arrows; correlations appear on double-headed arrows (p < .01).

8.6.5 Summary of Structural Equation Models

8.6.5.1 Revised Main Model

The revised model #2, or the Model of Employee Mental Health for the entire sample proved to have an acceptable level of fit and parsimony, after some iterations. The revised model #2, in large measure, reflects the hypothesized relationships. That is, the antecedents of job stress and perceived control were found to have a causal impact upon stress, anxiety and depressed mood. In turn, stress, anxiety and depressed mood were found to have a causal impact on the outcomes of burnout and negative productivity.

In terms of antecedents, job stress was a slightly more powerful antecedent than role overload in predicting global stress. Statistically significant gender differences were found to exist with respect to role overload and will be discussed in the next section. Perceived control turned out to be a relatively weak latent construct in terms of predictive strength, and the path from perceived control to depressed mood was dropped due to statistical insignificance. In addition, the paths that remained originating from perceived control were the weakest in the model.

In terms of outcome variables, burnout emerged as a critical latent construct in the model, as all of the standardized path coefficients leading to burnout were in excess of .500. Such a finding strongly suggests that burnout is the strongest latent construct in the Employee Mental Health model. In addition, negative productivity was found to be causally related to anxiety and depressed mood, but not stress.

In terms of unexpected results, the path from stress to negative productivity was dropped after performing a Wald test. This result was somewhat surprising as anxiety and

depressed mood both possessed statistically significant path coefficients leading to negative productivity. However, it is noteworthy to mention that Lagrange multiplier tests did not suggest a path should be added from job stress to negative productivity. Thus, job stress, and global stress have a different relationship with negative productivity than does anxiety and depressed mood. Potential reasons for these differences will be speculated upon in the Discussion section of the thesis.

In addition, Lagrange multiplier tests recommended the addition of paths from job stress and role overload to burnout. The path coefficients for these added causal links proved to be among the strongest in the model and greatly improved the model goodness-of-fit. However, these paths also highlight the intricacies involved in employee mental health as antecedent variables were found to have a direct impact upon outcomes, unlike the relationships specified in our hypothesized model.

8.6.5.2 Comparison of Male and Female Models

This section highlights the differences and similarities found to exist between the male and female models.

All of the significant differences between the male and female models' path coefficients involved role overload (see Table 31). In the male model, Wald tests recommended dropping the paths from role overload to anxiety and depressed mood, due to statistical insignificance. While the paths from role overload to anxiety and depressed mood were not significant in the male model, the female model showed strong causal paths (.526, and .504, respectively). This result would suggest that a very different dynamic exists between role overload and anxiety and depression when men are

compared to women.

In addition, the link between role overload and burnout was significantly higher for the female model (.601) in comparison to the male model (.502) (chi-square = 15.86, p < .01, df = 44), once again highlighting the importance of role overload in a model of female mental health.

The strongest standardized path coefficient in the male model involved the relationship between job stress and burnout, followed closely by the relationship between global stress and burnout. Thus, the male model provides ample evidence of the risks associated with high job stress and global stress resulting in burnout for men.

Overall, the male and female models of Employee Mental Health were quite similar. Both the male and female model possessed significant causal paths between role overload and stress. In addition, significant causal paths existed between job stress and global stress, anxiety and depressed mood, for both the male and female models. Perceived control was found to causally effect stress and anxiety in both the male and female models. In addition, both the male and female models possessed statistically significant path coefficients from stress, anxiety and depressed mood to burnout, and from anxiety and depressed mood to negative productivity.

8.7 Results of Proposition Testing

The propositions were assessed using the results of bivariate correlations, the canonical correlation procedures, the structural equation results, and regression findings, where applicable. The results of each proposition (i.e., supported, cautiously supported, or not supported) are provided in Table 32. While the terms supported and not supported

are readily understood, it is necessary to mention how cautiously supported was defined for this study. Cautious support is used in the cases where a proposition has conflicting results. For example, bivariate correlations may support the proposition, but the canonical correlations or structural equation modelling procedures may not.

Table 32

Results of Proposition Testings

No.	Proposition	Result
1	Anxiety and depressed mood will share the strongest interrelationship of the study's three primary variables (positive correlation).	Not Supported
2	The correlation between stress and depressed mood will be statistically significant (positive correlation).	Supported
3	The relationship between stress and anxiety will be statistically significant (positive correlation).	Supported
4	Perceived control will have significant negative relationships with stress, anxiety and depressed mood.	Supported
5	Positive affectivity will have significant negative relationships with stress, anxiety and depressed mood.	Not Supported
6	Negative affectivity will have significant positive relationships with stress, anxiety and depressed mood.	Cautiously Supported
7	Job security will have significant negative relationships with stress, anxiety and depressed mood.	Cautiously Supported
8	Mobility will have significant negative relationships with stress, anxiety and depressed mood.	Not Supported
9	Underemployment will have significant positive relationships with stress, anxiety and depressed mood.	Not Supported
10	Work involvement will have significant negative relationships with stress, anxiety and depressed mood.	Cautiously Supported
11	Job stress will have significant positive relationships with levels of global stress, anxiety and depressed mood.	Supported
12	Work to family conflict will have a stronger (positive) relationship with stress, anxiety and depressed mood than family to work conflict.	Cautiously Supported
13	Role overload will have significant positive relationships with stress, anxiety and depressed mood.	Supported

14a	An organizational culture supportive of personal life will have significant negative relationships with employee stress, anxiety and depressed mood.	Cautiously Supported
14b	An organizational culture that encourages turnover will have significantly positive relationships with employee stress, anxiety and depressed mood.	Cautiously Supported
14c	An organizational culture that encourages long hours will have significant positive relationships with employee stress, anxiety and depressed mood.	Cautiously Supported
14d	An organizational culture that rewards performance will have significant negative relationships with employee stress, anxiety and depressed mood.	Cautiously Supported
15	Organizational support will have statistically significant negative relationships with stress, anxiety and depressed mood.	Cautiously Supported
16	A work environment that is perceived to be highly flexible will have significant negative relationships with employee stress, anxiety and depressed mood.	Cautiously Supported
17	High work expectations will have significantly positive relationships with stress, anxiety and depressed mood.	Not Supported
18	Life satisfaction will have significant negative relationships with stress, anxiety and depressed mood.	Supported
19	Job satisfaction will have significant negative relationships with stress, anxiety and depressed mood.	Cautiously Supported
20	Burnout will have significant positive relationships with stress, anxiety and depressed mood.	Supported
21	Physical health will have significant negative relationships with stress, anxiety and depressed mood.	Supported
22a	Positive productivity self-reports will have negative relationships with stress, anxiety and depressed mood.	Not Supported
22b	Negative productivity self-reports will have positive relationships with stress, anxiety and depressed mood.	Supported
23	Organizational commitment will have significant negative relationships with stress, anxiety and depressed mood.	Cautiously Supported
24	Absenteeism will have significant positive relationships with stress, anxiety and depressed mood.	Not Supported
25	Women (controlling for job type) will report significantly higher levels of stress, anxiety and depressed mood than men.	Not supported

8.7.1 Psychological Distress Propositions

1. Anxiety and depressed mood will share the strongest interrelationship of the study's three primary variables.

The first proposition cannot be supported as the relationship between anxiety and depressed mood was the second strongest of the three correlations (at 0.627), with the correlation between stress and depressed mood being the strongest (at 0.733). The regression results confirmed that anxiety and depressed mood shared the second strongest relationship. The PRC in the regression involving depressed mood, with anxiety as the dependent variable, was 0.300; and 0.200 for anxiety, with depressed mood as the dependent variable. In comparison, the relationship between stress and depression was stronger (with a PRC in the regression involving depressed mood, with stress as the dependent variable, of 0.463; and 0.408 for stress, with depressed mood as the dependent variable). For these reasons the results of this study cannot support this proposition.

These findings run counter to previous research (e.g., Kendall and Watson, 1989) which found that anxiety and depressed mood were the most highly comorbid of the so called "affective disorders". It should be noted, however, that this study still found strong evidence that anxiety and depressed mood are highly comorbid states.

2. The correlation between stress and depressed mood will be statistically significant (positive correlation).

The second proposition was supported as the correlation between stress and depressed mood was not only statistically significant (at the 99% confidence interval), but was found to be the strongest of the three correlations (at .733). Thus, Weissman et al.'s (1977) hypothesis that periods of exposure to stressful situations are frequently

accompanied by depressive states is supported by the bivariate correlation, and the regression findings. While Perez and Wilkerson (1998) also argue that depressive states are often stress induced, we believe that this is the first study in an organizational setting to support this theory. Caution should be exercised in the interpretation of these results, however, as correlations and regression analyses cannot infer causality. It may be that high levels of stress are induced by depressive states. That is, people struggling with depressed mood may experience stressors in the environment differently from individuals with lower levels of depressed mood, with the end result being increased levels of stress.

3. The relationship between stress and anxiety will be statistically significant (positive correlation).

The third proposition is supported by the results of this study. While the relationship between stress and anxiety had a strong bivariate correlation (.558), this correlation was the weakest of the three relationships. The regression results confirmed that stress and anxiety had a statistically significant relationship that was the weakest of the three relationships. However, it should be noted that despite the fact that the relationship between stress and anxiety was the weakest relationship involving the three forms of psychological distress, it was by no means a weak relationship as the strong correlation, and regression results show that stress an anxiety share a very strong relationship and should be considered highly comorbid states. The relationship between stress and anxiety appears to be strongest when anxiety is the dependent variable and stress is the independent variable (as the Pratt's ratio coefficient for stress is 0.119).

Previous research (e.g., Greenglass and Burke, 1988) found that persons exposed to stressful situations frequently developed depressive states. We are not aware of any theory that suggests the reverse, or explains our finding that heightened levels of anxiety produce stress in individuals.

8.7.2 Antecedent Propositions

8.7.2.1 Individual Antecedent Propositions

4. Perceived control will have significant negative relationships with stress, anxiety and depressed mood.

The fourth proposition was supported by the results of this study. Perceived control was found to have statistically significant, negative, bivariate correlations with stress (-.476), anxiety (-.351) and depressed mood (-.486). These correlations should all be considered strong. In addition, the canonical correlation results showed that perceived control had the second highest standardized ratio coefficient of all antecedent variables (0.242). Combined, these results provide strong support for this proposition.

These findings lend support to the work of Bandura (1988) who found that a high degree of perceived control was linked to positive psychological functioning, while a low degree of perceived control has been associated with heightened levels of stress (Desai, 1990), anxiety (Hurrell and Murphy, 1991) and depression (Perez and Wilkerson, 1998).

5. Positive affectivity will have significant negative relationships with stress, anxiety and depressed mood.

This proposition cannot be supported by the results of this study. Positive affectivity was found to have statistically significant, bivariate correlations with stress (-.176), anxiety, (-.099), and depressed mood (-.167). While these correlations were significant and in the

predicted direction they should be considered weak. Stevens (1996) cautions that bivariate correlations involving large samples, as in the case of this study, often yield statistically significant results despite seemingly weak correlations.

Further evidence of the lack of association between positive affectivity and stress, anxiety and depressed mood can be gathered from the canonical correlation results. Positive affectivity had a very weak standardized ratio coefficient (.008), suggesting that positive affectivity has a very weak association with stress, anxiety and depressed mood when assessed simultaneously against other antecedent variables. This finding runs counter to the work of Judge and Hulin (1993) who found that individuals engaged in their environments (and thus, scoring highly on measures of positive affectivity) were more content with their lives and more likely to score highly on dimensions of well-being. What this study's findings do suggest is that other antecedent variables have a much stronger association with stress, anxiety and depressed mood than positive affectivity.

6. Negative affectivity will have significant positive relationships with stress, anxiety and depressed mood.

The results from this study cautiously support this proposition. Negative affectivity had moderately strong, bivariate correlations (statistically significant), in the predicted direction, with stress (.283), anxiety (.258), and depressed mood (.312). However, the results of the canonical correlation analysis revealed that negative affectivity possessed a weak standardized ratio coefficient (.030). Therefore, when compared to other antecedent variables simultaneously, negative affectivity had a relatively weak association with stress, anxiety and depressed mood. Still, the proposition can be cautiously

supported by the moderately strong bivariate correlations, which were all in the predicted direction. These findings suggest that dimensions of negative affectivity can be associated with psychological distress (especially depressed mood). This finding is consistent with the fact that dimensions of negative affectivity, including sadness, loneliness, and self-dissatisfaction have all been strongly related to depressed mood (Kendall and Watson, 1989).

7. *Job security will have significant negative relationships with stress, anxiety and depressed mood.*

This proposition is cautiously supported by the results of this study. Job security was found to have statistically significant, negative, bivariate correlations with stress (-.328), anxiety (-.257), and depressed mood (-.319). However, the canonical correlation results found that job security had a standardized ratio coefficient of .015, which can be considered relatively weak. Despite the weak standardized ratio coefficient the proposition can be cautiously supported by the bivariate correlations, which were all relatively strong and in the predicted direction. The bivariate correlations support the work of Greenhalgh and Rosenblatt (1984) who found that threats to job security increased stress, and the work of Kuhnert et al. (1989) who found that job security was significantly related to increased depression symptomatology.

8. *Mobility will have significant negative relationships with stress, anxiety and depressed mood.*

This proposition cannot be supported by the findings of this study. Mobility possessed weak, yet statistically significant, bivariate correlations with stress (-.066) and depressed mood (-.069), while its correlation with anxiety was non-significant. In addition

to these very weak correlations, mobility possessed a very weak standardized ratio coefficient (.004) in the canonical correlation analysis. Combined, these findings suggest there is little direct association between mobility and stress, anxiety and depressed mood. This finding runs counter to the research by Bandura (1988) who found that mobility (due to its hypothesized increase in perceived control) was positively related to measures of well-being. This study recommends that future studies of employee mental health examine mobility solely for its moderating effect on perceived control (such an approach is consistent with the view of Kuhnert and Vance, 1992), and not be considered a direct antecedent of measures of well-being or psychological distress (the approach taken in this study and supported by Bandura (1988)).

9. Underemployment will have significant positive relationships with stress, anxiety and depressed mood.

This proposition cannot be supported by the results of this study. Underemployment was found to have weak bivariate correlations (in the opposite direction than predicted) with stress (-.096) and depressed mood (-.089). The bivariate correlation with anxiety was statistically insignificant. In addition, underemployment possessed a weak standardized ratio coefficient (.009) from the canonical correlation analysis. These findings do not support the work of Jones-Johnson and Johnson (1992) who found that underemployment was strongly related to a decreased sense of well-being. In addition, this study found no support for the findings of O'Brien (1986), who concluded that feelings of underemployment cause feelings of helplessness and fatalism, which, in turn, have been strongly associated with depressed moods (Kendall and Watson, 1989). The findings of

our study suggest that underemployment may be best studied as a moderating variable of perceived control (consistent with one of the findings in the Jones-Johnson and Johnson (1992) study), and not as a direct antecedent of stress, anxiety and depressed mood.

10. Work involvement will have significant negative relationships with stress, anxiety and depressed mood.

This proposition can only be cautiously supported by the results of this study. Work involvement was found to have statistically significant, bivariate correlations with stress (-.200), anxiety (-.132), and depressed mood (-.205). These correlations should be considered moderately strong, at best. The canonical correlation analysis revealed that work involvement had a standardized ratio coefficient of 0.011. Therefore, in comparison with other antecedent variables, work involvement had a weak simultaneous correlation with stress, anxiety and depressed mood. Still, the bivariate correlations are statistically significant and in the predicted direction, thus lending cautious support to this proposition.

These findings provide some support to the work of Neff (1985), who found that being engaged (involved) in your job can, to some degree, protect or shelter individuals from the onset of psychological problems. This line of argumentation requires stronger support in future studies of employee mental health.

11. Job stress will have significant positive relationships with global levels of stress, anxiety and depressed mood.

This proposition can be strongly supported by the results of this study. Job stress was found to have strong, statistically significant, bivariate correlations with stress (.454), anxiety (.497), and depressed mood (.428), in the predicted direction. In addition, the canonical correlation results found that job stress was the most important of all antecedent

variables (with a standardized ratio coefficient of .268).

Further insights into the association between job stress and stress, anxiety and depressed mood could be found in the causal modelling process. Job stress has the strongest causal paths to stress, anxiety and depressed mood of any antecedent variable in the causal modelling portion of the results (with standardized path coefficients of .481, .504, and .465, respectively). While authors have argued for some time (e.g., Holt, 1983) that job stress spills-over into global levels of stress, this study found that job stress also spills-over into anxiety and depressed mood. The results of this study support the assertion of Perez and Wilkerson's (1998) that stressors in the work environment have a profound affect on the mental health of employees.

8.7.2.2 Individual-Organizational Interface Antecedent Propositions

12. Work to family conflict will have a stronger (positive) relationship with stress, anxiety and depressed mood than family to work conflict.

This proposition can be cautiously supported by the results of the study. When the bivariate correlations between work to family conflict, family to work conflict and stress, anxiety and depressed mood are examined, the correlations are consistently positive, and moderately strong in nature. Work to family conflict has stronger bivariate correlations (statistically significant) with stress, anxiety and depressed mood (.337, .336, and .273, respectively) than family to work conflict (.240, .177, and .219, respectively). In addition, the canonical correlation results revealed that work to family conflict was nearly three times as important as family to work conflict (with a standardized ratio coefficient of .037, compared to .013) as an antecedent to stress, anxiety and depressed mood. However,

.037 cannot be considered a strong standardized ratio coefficient in comparison to the values achieved by job stress, perceived control and role overload.

The findings of this study lend some support to the work of Swanson et al. (1988) who suggested that work to family conflict is a more important variable than family to work conflict in increasing levels of stress and depression. The bivariate correlation results suggest that a similar relationship exists between work family conflict and anxiety.

13. Role overload will have positive significant relationships with stress, anxiety and depressed mood.

This proposition was strongly supported by the results of this study. Role overload was found to have statistically significant, positive, bivariate correlations with stress (.458), anxiety (.408) and depressed mood (.382). In addition, the canonical correlation procedures found that role overload was a prominent antecedent variable (with a standardized ratio coefficient of .237). Further support for the relationships between role overload and stress, anxiety and depressed mood can be gathered from the causal modelling procedures. The main causal model found that role overload had a strong causal effect on stress (.455), anxiety (.421), and depressed mood (.408). However, statistically significant gender differences (controlling for job type) existed with respect to role overload as only the paths from role overload to anxiety and depressed mood in the female model were found to be significant.

The findings of this study support the work of Shaubroek et al. (1992) and Abramis (1994) who found that role overload had a direct, positive relationship with depression and anxiety. This study extends the logic of the previous two studies to include a direct

positive relationship between role overload and stress.

8.7.2.3 Organizational Antecedent Propositions

14a. An organizational culture supportive of personal life will have significant negative relationships with stress, anxiety and depressed mood.

This proposition can only be cautiously supported by the results of this study. An organizational culture supportive of personal life was found to have moderately strong, statistically significant, bivariate correlations, in the predicted direction, with stress (-.277), anxiety (-.229), and depressed mood (-.233). However, in the canonical correlation analysis, an organizational culture supportive of personal life was found to have a weak standardized ratio coefficient of 0.016. This finding suggests that other antecedent variables have a much stronger association with stress, anxiety and depressed mood when assessed simultaneously. Still, the bivariate correlations were moderately strong and in the predicted direction, thus, lending cautious support to this proposition. The findings of this study provide some support to the work of Spector et al. (1988) who found that when employees perceived their organizational culture to value their non-work lives, they were more likely to score highly on measures of well-being.

14b. An organizational culture that encourages turnover will have significantly positive relationships with stress, anxiety and depressed mood.

Once again, the findings of this study can only cautiously support this proposition. An organizational culture that supports turnover was found to have statistically significant, positive, bivariate correlations with stress (.269), anxiety (.245), and depressed mood (.239). However, the canonical correlation analysis found that an organizational culture that encourages turnover to have a weak standardized ratio coefficient (.025). This

relatively weak coefficient suggests that other antecedent variables share a much stronger association with stress, anxiety and depressed mood. Still, the bivariate correlations were moderately strong and in the predicted direction providing cautious support to this proposition. This finding lends some support to the work of Clegg (1983) who found that organizational cultures with high levels of turnover are likely to effect employees through increased psychological distress.

14c. An organizational culture that encourages long hours will have significant positive relationships with employee stress, anxiety and depressed mood.

The findings of this study cautiously support this proposition. An organizational culture that encourages long hours was found to have statistically significant, positive, bivariate correlations with stress (.201), anxiety (.179), and depressed mood (.141). However, the results of the canonical correlation analysis found that an organizational culture that encourages long hours to have a weak standardized ratio coefficient (0.011). This relatively weak coefficient suggests that other antecedent variables have a stronger association with stress, anxiety and depressed mood when assessed simultaneously. Still, the bivariate correlations were statistically significant and in the predicted direction, lending cautious support to this proposition. This finding provides some support to Spector et al. (1988) who found that when long hours become the cultural norm in an organization, employee well-being significantly decreases.

14d. An organizational culture that rewards performance will have significant negative relationships with employee stress, anxiety and depressed mood.

The findings of this study cautiously support this proposition. An organizational culture that rewards performance was found to have statistically significant, negative,

bivariate correlations with stress (-.237), anxiety (-.165), and depressed mood (-.204). These correlations should be considered moderately strong. However, in the canonical correlation analysis, an organizational culture that rewards performance was found to have a weak standardized ratio coefficient (0.013). Again, this weak standardized ratio coefficient suggests that other antecedent variables have stronger association with stress, anxiety and depressed mood when assessed simultaneously. Despite the weak standardized ratio coefficient, the bivariate correlations were statistically significant and in the predicted direction, lending cautious support to this proposition. This finding provides some degree of support to the work of Karasek and Theorell (1990) and Cole (1999) who found that low reward environments may create an atmosphere of perceived injustice due to a lack of personal recognition, in which employee mental health may be challenged.

15. Organizational support will have statistically significant negative relationships with stress, anxiety and depressed mood.

This proposition is cautiously supported by the results of this study. Organizational support was found to have statistically significant, negative, bivariate correlations with stress (-.340), anxiety (-.230), and depressed mood (-.296). These correlations should be considered moderately strong. However, organizational support obtained a standardized ratio coefficient of .039 in the canonical correlation analysis, and while this result made it the fourth strongest antecedent variable, organizational support was approximately six times weaker than role overload (the third most important antecedent variable). Still, the fourth strongest standardized ratio coefficient of all antecedent variables and strong

bivariate correlations in the predicted direction lend cautious support to this proposition. These findings provide some measure of support to the work of Eisenberger and colleagues (1986) who found that the extent to which an organization is responsive to employee opinions, acknowledges the input and effort of employees, and recognizes the importance of non-work roles (their definition of organizational support) were all negatively associated employee stress levels.

16. A work environment that is perceived to be highly flexible will have significant negative relationships with stress, anxiety and depressed mood.

The findings of this study cautiously support this proposition. The flexibility of work was found to have statistically significant, negative, bivariate correlations with stress (-.272), anxiety (-.241), and depressed mood (-.220). However, the canonical correlation analysis revealed that the flexibility of work had a relatively weak standardized ratio coefficient (0.020). Despite this low coefficient, this proposition must be tentatively supported as the bivariate correlations were all statistically significant, moderately strong, and in the predicted direction. This finding lends some degree of support to the work of Spector et al. (1988) who found that flexibility in the work schedule reduces stress.

17. High work expectations will have significantly positive relationships with stress, anxiety and depressed mood.

The findings of this study do not support this proposition. Work expectations were found to have statistically significant, yet relatively weak, bivariate correlations with stress (.113), anxiety (.134), and depressed mood (.075). Once again, it is important to heed the warning of Stevens (1996) that even weak bivariate correlations may emerge as statistically significant if utilizing a large sample. Such appears to be the case in this

study, with respect to the bivariate correlations of work expectations and stress, anxiety and depressed mood. In addition, work expectations had the weakest standardized ratio coefficient of any antecedent variable (0.003) in the canonical correlation analysis. Combined, the results of this study do not support this proposition.

These findings run counter to research that has found an association between high work expectations and increased incidences of global stress (Remodet and Hansson, 1991), anxiety (Carayon-Saintford, 1992; Landsbergis et al., 1992), and general mental ill-health (Cooper and Kelly, 1993). The findings of this study suggest that, while the perceived expectations of peers and supervisors has previously been found to influence well-being, when a large number of antecedent variables are tested for their association with stress, anxiety and depressed mood, other variables emerge that have stronger associations than work expectations.

8.7.3 Consequence Propositions

8.7.3.1 Individual Consequence Propositions

18. Life satisfaction will have significant negative relationships with stress, anxiety and depressed mood.

The findings of this study provide support for this proposition. Life satisfaction was found to have statistically significant, negative, bivariate correlations with stress (-.498), anxiety (-.348), and depressed mood (-.477). Each of these bivariate correlations should be considered strong. In addition life satisfaction had the third strongest standardized ratio coefficient (.138) of all outcome measures (compared to burnout (.336) and negative productivity (.262). Combined these findings provide strong support for this proposition.

It should be noted that despite the decision not to include life satisfaction in the structural equation modelling procedures (due to concerns regarding the number of variables in the hypothesized model), life satisfaction should be included in future studies of employee mental health.

The findings of this study support the work of Headey et al. (1993) who reported that individuals with high levels of life satisfaction report low levels of anxiety and depression. In other words, the findings of this study suggest that stress, anxiety and depressed mood reduce feelings of life satisfaction.

19. Job satisfaction will have significant negative relationships with stress, anxiety and depressed mood.

This proposition is cautiously supported by the findings of this study. Job satisfaction was found to have statistically significant, negative, bivariate correlations with stress (-.405), anxiety (-.297), and depressed mood (-.354). These correlations were all in the predicted direction and should be considered strong. However, the results of the canonical correlation procedures revealed that job satisfaction had a weak standardized ratio coefficient (.034). In fact, of the eight outcome variables studied, job satisfaction ranked sixth in variable importance. Despite the weak standardized ratio coefficient, the strong bivariate correlations lend cautious support to this proposition.

This study provides some support to the view of Kinicki et al. (1996) who suggested that organizational research may be missing out on other important outcome variables by focussing only on job satisfaction. The results of this study found that other outcome variables (including burnout, negative productivity, life satisfaction, and physical health)

were more important outcome variables, in comparison to job satisfaction.

20. Burnout will have significant positive relationships with stress, anxiety and depressed mood.

The findings of this study provide strong support for this proposition. Burnout was found to have statistically significant, positive, bivariate correlations with stress (.597), anxiety (.536), and depressed mood (.570). These bivariate correlations were the strongest associations with stress, anxiety and depressed mood of any outcome or antecedent variable. In addition, the canonical correlation analysis confirmed that burnout was the most important outcome variable (with a standardized ratio coefficient of .336). The causal modelling efforts found very strong causal relationships between stress, anxiety and depressed mood and burnout (with standardized path coefficients of .592, .548, and .559, respectively). The results of this study expand the work of Maslach and Jackson (1986) and suggest that not only does stress influence levels of burnout, but so do anxiety and depressed mood.

21. Physical health will have significant negative relationships with stress, anxiety and depressed mood.

The findings of this study provide support for this proposition. Physical health was found to have statistically significant, negative, bivariate correlations with stress (-.438), anxiety (-.473), and depressed mood (-.455). In addition, physical health was found to have a relatively strong standardized ratio coefficient (0.136) in the canonical correlation analysis. Combined, these findings provide support for the proposition. Similar to life satisfaction, physical health was not included in the causal modelling process due to concerns regarding the number of variables in the hypothesized model. This decision

should not be interpreted to mean that physical health is not an important variable in studies of employee mental health. On the contrary, the results of this study would suggest that future employee mental health research should include physical health as an outcome variable. The findings of this study support numerous medical and psychological studies that have argued that prolonged periods of psychological strain may weaken the immune system and make individual's more susceptible to physical health problems (e.g., Israel et al., 1989; Hendrix et al., 1995).

8.7.3.2 Organizational Consequence Propositions

22a. Positive productivity self-reports will have negative relationships with stress, anxiety and depressed mood.

The results of this study do not support this proposition. Positive productivity was found to have relatively weak, yet statistically significant, negative, bivariate correlations with stress (-.171), anxiety (-.099), and depressed mood (-.161). One is again reminded of the warning of Stevens (1996) who argued that relatively weak bivariate correlations can be statistically significant in large samples. These relatively weak bivariate correlations, coupled with a very weak standardized ratio coefficient (.015) in the canonical correlation analysis, do not provide support for this proposition.

While previous research has found that psychological distress effects productivity (e.g., Friend, 1982; Jones et al., 1988), few studies have separated productivity into positive and negative constructs. The findings of this study suggest that positive productivity (or productivity gains) do not have a strong association with stress, anxiety and depressed mood.

22b. Negative productivity self-reports will have positive relationships with stress, anxiety and depressed mood.

The findings of this study provide strong support for this proposition. Negative productivity was found to have statistically significant, positive, bivariate correlations with stress (.433), anxiety (.354), and depressed mood (.358). These correlations were all in the predicted direction and should be considered strong. In addition, negative productivity emerged with the second strongest standardized ratio coefficient (.262) in the canonical correlation analysis (only burnout possessed a stronger standardized ratio coefficient of .336). Combined, these results strongly support the proposition.

This finding is consistent with much of the employee well-being research concerning productivity, which has found that elevated levels of stress, anxiety and depressed mood are strongly associated with lower levels of productivity (Matteson and Ivancevich, 1987; Spector et al., 1988; Perez and Wilkerson, 1998). This study found strong support for the view that employees dealing with psychological distress may reduce effort expenditure (thus, decreasing productivity) as they are forced to expend energy on the emotional state itself (Abramson et al., 1989). Due to the differences in the findings between positive and negative productivity, this study strongly advocates for the separation of productivity into two categories (positive and negative) for future employee mental health research.

23. Organizational commitment will have significant negative relationships with stress, anxiety and depressed mood.

The findings of this study cautiously support this proposition. Organizational commitment was found to have statistically significant, negative, bivariate correlations with stress (-.312), anxiety (-.180), and depressed mood (-.271). Despite the moderately strong

bivariate correlations, organizational commitment possessed a relatively weak standardized ratio coefficient (0.027) in the canonical correlation analysis. This finding suggests that other outcome variables had much stronger associations with stress, anxiety and depressed mood when assessed simultaneously. Still, the bivariate correlations were moderately strong and in the predicted direction, lending cautious support to the proposition. This finding lends some support to the research by Abramson et al. (1989) and Roskies et al. (1993), that found that individuals experiencing high levels of psychological distress will become less concerned with organizational goals (i.e., become less committed to their organization) as their effort expenditure shifts toward taking care of themselves.

24. Absenteeism will have significant positive relationships with stress, anxiety and depressed mood.

The results of this study do not support this proposition. Absenteeism was found to have statistically significant, positive, bivariate correlations with stress (.169), anxiety (.192), and depressed mood (.167). These correlations should be considered relatively weak and their statistical significance may be due to sample size (Stevens, 1996). In addition, absenteeism possessed a relatively weak standardized ratio coefficient (0.064) in the canonical correlation analysis. Combined these results do not provide support for the proposition.

This finding runs counter to much of the prevailing sentiments regarding absenteeism and mental health. Previous research has suggested that individuals dealing with forms of psychological distress are significantly more likely to be absent than

individuals without psychological problems (Kivimacki et al., 1997). The results of this study suggest (1) that individuals experiencing high levels of stress, anxiety and depressed mood may be "toughing it out" at work (by their own choice, or a perception that the culture of the organization will not support time off for mental/emotional problems), and (2) that individuals were absent for other reasons (e.g., health problems, family related problems, or just not feeling like going to work), making the relationship between absenteeism and psychological distress less strong. As this result runs contrary to much previous research, this study would caution that such a result requires replication. In other words, absenteeism should not be hastily dropped from future studies of employee mental health.

8.7.4 Gender Difference Proposition

25. Women (controlling for job type) will report significantly higher levels of stress, anxiety and depressed mood than men.

This study found partial support for the proposition that women report higher levels of stress, anxiety and depressed mood than men. When job type was used as a control variable the gender differences disappeared with respect to stress, but remained with respect to anxiety and depressed mood (gender differences for anxiety: $F = 6.79, p < .01$, $df = 2478$), and for depressed mood: $F = 6.47, p < .01, df = 2478$). The proposition called for significant gender differences (controlling for job-type) in all three forms of psychological distress. As stress did not exhibit significant gender differences (controlling for job type) this proposition cannot be fully supported by the results of this study.

Such findings are at odds with the work of Pugliesi (1995) who found that gender exerted the strongest effect on stress differential, resulting in women, in that study, being almost twice as likely as men to suffer from chronic stress. However, it should be emphasized that Pugliesi (1995) did not control for job type, leaving the results of that study somewhat controversial.

The findings of this study support the statistics surrounding anxiety and depression in Canada (see Perez and Wilkerson, 1998), with women reporting significantly higher levels of anxiety and depressed mood than men.

9. Discussion

9.1 Discussion of Key Findings

A discussion of the key findings of the study is presented in order of the study's objectives.

9.1.1 The Prevalence of Stress, Anxiety and Depressed Mood

This study used the more conservative 3.0 level (on a five-point Likert scale) as the threshold at which employees were considered to be grappling with symptoms of stress, anxiety and depressed mood. At this level, nearly 24% of the sample was dealing with elevated levels of stress, and close to 14% of respondents were grappling with elevated levels of anxiety and depressed mood. The percentages are close to the findings of Dauer (1989) who reported that 25% of a company's workforce suffers from an anxiety disorder or a stress related illness. This research does, however, provide more information than Dauer (1989) who lumped all forms of psychological distress into a single category.

By separating stress, anxiety and depressed mood, this study found that stress is more prevalent than anxiety and depressed mood in the sample. This finding has intuitive appeal as anxiety and depressed moods are more clinical in nature and have consistently been reported as less prevalent than stress (see Perez and Wilkerson, 1998). However, this study found that at higher threshold levels the percentage of employees suffering from more debilitating forms of stress, anxiety and depressed mood is actually quite similar (approximately 5% of the sample at the 3.5 threshold level). This finding calls into question the notion that severe stress is a more common psychological problem than anxiety or depressed mood.

For the majority of the sample, who report low or moderate levels of stress, anxiety and depressed mood, the theory that stress is more prevalent than anxiety or depressed mood may be true, but for individuals with higher levels of symptomatology the findings of our study suggest that it is misleading to state that stress is more prevalent than anxiety or depressed mood. In short, when discussing the prevalence of a form of psychological distress, this study suggests that the extent of symptomatology must always be considered.

Gender differences were found with respect to the prevalence of stress, anxiety and depressed mood. These differences disappeared for stress when job type was used as a controlling variable, but remained for anxiety and depressed mood. This finding suggests that job type plays a major role in determining the stress levels of employees, but does very little to explain levels of anxiety or depressed mood. Future research would be well served by controlling for job type in examinations of gender differences surrounding mental health, in order to ensure that the gender differences are real, and not a job type confound.

Why women report significantly higher levels of anxiety and depressed mood is a very different question. While such a finding supports the vast majority of research into gender differences in levels of reported psychological distress (e.g., Nelson and Hitt, 1992; Roxburgh, 1996; Perez and Wilkerson, 1998), one is left to wonder if the results of our self-report questionnaire are due to the fact that "A woman is more likely to admit that she has a problem that is making her feel bad" (Martin Shain, cited in Sarjeant, 1987, p. 2). Thus, while the study reports higher levels of anxiety and depressed mood in women, such

a finding should be viewed with caution, as the social context and gender norms that surround mental illness may have influenced the self-report data. However, the results of this study suggest that real gender differences (controlling for job type) do exist in the prevalence of anxiety and depressed mood, with role overload playing a major role in the higher incidence of anxiety and depressed mood in women.

Organizations should be mindful of the consistent reports (including this study) that suggest women in the workplace are more likely to suffer from anxiety and depressed mood (controlling for job type) than their male counterparts. As anxiety and depressed mood were shown to directly impact negative productivity and burnout, these conditions are likely costing employers considerable amounts of money in disability claims and lost productivity. Intervention strategies (discussed in a subsequent section) should be targeted toward the factors that are contributing to anxiety and depressed mood in women, in order to minimize the impact of these psychological problems on both the employee and the organization.

9.1.2 The Relationship Between Stress, Anxiety, and Depressed Mood

The relationships found in this study between stress, anxiety and depressed mood were all very strong, but did not always conform to previous research results. The strongest relationship involved stress and depressed mood, while previous evidence has suggested that anxiety and depressed mood should have the strongest relationship because of their more clinical nature and degree of comorbidity (Kendall and Watson, 1989). Support for the finding that stress is strongly related to depressed mood can be found in the literature (Weissman et al., 1977), and is based on the notion that prolonged

periods of stress can lead to depressed moods. However, there is very little additional theoretical justification for such a relationship.

A possible explanation for the strong relationship found between stress and depressed mood, in this study, is that prolonged periods of stress may leave a person feeling frustrated with a problem or situation, that they no longer perceive they can influence or change. When a person no longer believes that continued mobilization toward a problem or situation will influence the outcome, depressed moods are likely to follow (Weiss, 1990). Therefore, stress induced frustration, or a perceived inability to affect change in a stressful situation, may, very plausibly, lead to a depressed mood.

The relationship between anxiety and depressed mood was also extremely strong (bivariate correlation of .627), and thus the study provides additional evidence that anxiety and depressed mood are highly comorbid states (Kendall and Watson, 1989).

Finally, the relationship between stress and anxiety, although the weakest of the three, was still found to have a strong correlation (.558). While this finding supports the work of Greenglass and Burke (1988) that prolonged exposure to stressful situations increases the likelihood of developing anxiety symptoms, it does not fully explain why such a relationship may exist. A plausible explanation is that persons suffering from anxiety worry about vague, distant or consciously unrecognized dangers (Bourne, 1990), and therefore heightened levels of stress (caused by stressors) may cause individuals to worry about the stressful situation. In other words, stress, brought on by an interpretation of stressors in the environment, may heighten the degree of worry or fear a person experiences, thus increasing levels of anxiety.

9.1.3 Antecedents of Stress, Anxiety and Depressed Mood

The antecedents that emerged from the canonical correlation analysis as being the most important variables for further examination were job stress, perceived control and role overload.

Job stress was the strongest antecedent variable, and this finding supports the work of Judge et al. (1994) who found that job stress spills-over into global levels of stress. This study expanded the findings of Judge et al. (1994) and found that job stress actually spills-over into anxiety and depressed mood, in addition to stress. To explain the relationships between job stress and anxiety and depressed mood, reasoning similar to the relationship between global stress and anxiety and depressed mood can be used. The only difference being that the stressors influencing levels of anxiety and depressed mood are originating from within the workplace, whereas with global levels of stress, the stressors may originate from any part of non-work life. This finding emphasizes the important role that the workplace plays in determining mental health. Organizations need mechanisms to understand and eliminate negative forms of work stress.

Perceived control also emerged as an important antecedent variable. This finding provides support for the argument that personality variables are critical in the study of occupational health. Specifically, the emergence of perceived control as a critical antecedent variable supports the work of Perez and Wilkerson (1998) that the amount of control a worker perceives he/she has over his/her job has as much impact on mental health as biochemical factors. This finding also supports the work of Karasek (1979) that increased control helps employees cope with increased demands.

Perceived control was found to have a significant causal (negative) relationship with stress and anxiety, but not with depressed mood. A possible explanation for this finding is that both stress and anxiety are negative affect states where the degree of perceived control an individual feels over his/her environment plays a major role in the level of symptomatology experienced. In other words, the data suggests that if an employee believes that he/she is in control of a situation they are less likely to feel stressed or anxious by it.

This line of argumentation expands upon the work of Saleh and Desai (1990) and Cohen and Edwards (1989) that the higher the level of perceived control, the lower the level of stress experienced. The findings of this study support the idea that the degree to which a person believes they can "control" or positively influence a stressor will have a direct bearing on the amount of stress they ultimately experience. Anxiety, on the other hand, is believed to be a worry or fear in response to a vague, distant or unrecognized danger. A low degree of perceived control may exacerbate or create stressors, worries or fears that increase levels of anxiety. That is, if a person believes they have little or no control over a problem or situation, they may become worried or fearful, thus directly contributing to anxiety. Thus, the data suggests that one method of decreasing stress and anxiety is to increase an employees perception of control.

Why perceived control was not causally related to depressed mood is difficult to explain, as this finding runs counter to previous research (e.g., Bandura, 1988). One possible explanation is that depressed mood is a negative affect state characterized by feeling "down", lacking energy and emotional detachment. The degree of control a person

perceives they have over their environment is unlikely to directly effect levels of depressed mood, as these moods are usually created by significant events in the environment (Kendall and Watson, 1988), including a major change in job responsibilities, the loss of a job, or the loss of a loved one. Due to the magnitude of the environmental stimuli that contribute to the onset of depressed mood, the degree of perceived control over that event is likely to be very low, or insignificant. That is, perceived control may not have a direct effect on levels of depressed mood. However, the results of the study indicate that perceived control may have an indirect effect on depressed mood due to the comorbidity of stress, anxiety and depressed mood. As perceived control does influence levels of stress and anxiety, and both of these forms of psychological distress are strongly related to depressed mood, perceived control may indirectly decrease levels of depressed mood.

Role overload was the final key antecedent variable to emerge from the canonical correlation analysis. Role overload was found to have a significant causal relationship with stress, anxiety and depressed mood. However, significant gender differences emerged on the paths from role overload to anxiety and role overload to depressed mood, with women having the only significant causal paths. These gender differences support the work of Babin and Boles (1998) who found that role overload had a stronger (negative) impact on employee well-being for female service providers in comparison to their male counterparts.

In combination, the results of this study can be used to explain the discrepancy between the importance of role overload in predicting psychological distress in men and women. Women had significantly higher mean levels of role overload, on average,

(controlling for job type) than their male counterparts (see Appendix B). It is plausible that threshold levels exist in role overload, above which, individuals first experience stress and then experience anxiety and depressed mood. Men, in the sample, due to their lower average role overload score (controlling for job type), only have their stress levels affected as a result of role overload. Women, on the other hand, due to their significantly higher mean role overload scores (controlling for job type) experience heightened anxiety and depression, in addition to stress.

But the question remains, "Why do women report significantly higher levels of role overload (controlling for job type) than men?". A plausible explanation lies in the differences in competing roles for men in comparison to women. The competing roles of women include the inequitably shared division of labour, home care, child care, and elder care responsibilities in addition to career responsibilities.

Data collected for this study shows that men in the sample spend an average of 44 hours/week at work, while women spend an average of 37 hours. However, women spend, on average 13 hours/week on home chores or errands and 8.3 hours per week in childcare roles. In comparison, men, on average, spend 8 hours per week on home chores or errands, and 5 hours per week in childcare roles.

The multiple role demands of women lead to high levels of role overload, which, in turn, spill-over into increased levels of stress, anxiety and depressed mood. The competing roles of women are likely to act as stressors (and thereby increase stress levels), cause excessive worry about being all things to all people (and thus contribute to increased levels of anxiety), and lead to feelings of hopelessness as there simply may not

be enough time in the day for many women to complete the duties involved in their competing roles to their own satisfaction (and therefore, contribute to increased levels of depressed mood). Thus, women may internalize perceptions of role overload and inadequate time for roles as meaning they are not meeting societal norms concerning what it means to be a "good" employee, wife, mother, eldercare provider, etc., resulting in increased stress, anxiety and depressed mood.

In contrast, the competing roles in a man's life have traditionally been defined as how family responsibilities interfere with a man's ability to work, or play the breadwinner role (Kimmel, 1993). Thus, roles and responsibilities outside the work realm serve as environmental stressors that may increase male stress levels. As long as men are able to perform their work roles adequately and comfortably, they are less likely to report high levels of role overload, in comparison to women. Due to the comparatively lower levels of role overload for men, caused by the comparatively different societal expectations of male and female roles, men are less likely to cross the threshold levels of role overload that trigger anxiety and depressed mood.

This finding has several important implications. First, role overload was found to lead to increased levels of stress in both men and women. This finding suggests that the multiple role demands of men are causing them to feel increased levels of stress, despite research findings that suggest multiple role demands only have a significant relationship with stress in women (e.g., Barnes and Maple, 1992). Second, while men may be feeling increasingly "stressed" as a result of competing role demands, women are experiencing increased levels of anxiety and depressed mood, in addition to stress. This finding could

suggest that women are more likely than men to worry about how well they are juggling their competing role demands (a symptom of anxiety), and to be feeling down or immobilized with respect to changing their current role demand situation (a symptom of depressed mood). In summary, strong perceptions of role overload were found to have more profound effects on the mental health of women, in comparison to men.

9.1.4 Outcomes of Stress, Anxiety and Depressed Mood

Burnout and negative productivity emerged from the canonical correlation analysis as the key outcome variables. Burnout, specifically, was the strongest latent construct in the model with all path coefficients leading to burnout being in excess of .50. The hypothesized relationships between all three forms of psychological distress were found to be strongly causally related to burnout.

These findings expand upon the work of Maslach and Jackson (1986) who found that sustained levels of stress could be linked to burnout, by additionally showing that anxiety and depressed mood are also causally linked to burnout. The findings of this study suggest that employees suffering from higher levels of stress, anxiety and depressed mood are all susceptible to "burning out". The theoretical justification for this finding is that when an individual is grappling with a psychological problem, their effort expenditure will decrease as they are forced to expend energy on the emotional state (Abramson et al., 1989). If conditions do not improve there is only a finite amount of stress, anxiety or depressed moods an individual can tolerate before being overwhelmed by their situation Perez and Wilkerson, 1998). Having such strong causal paths leading to burnout emphasizes the toll that mental problems can have on both individuals and organizations,

as burnout not only has profound effects on the individuals well-being, but also on the organization's bottom line (Maslach and Jackson, 1986).

While Kinicki et al. (1996) argue that burnout and job satisfaction have been studied to the relative exclusion of all other outcome variables, this study found strong support for the continued inclusion of burnout in study's of occupational health. Job satisfaction, by contrast, was not found to be an important outcome variable relative to the other outcomes in the study (as evidenced by its weak standardized ratio coefficient in the canonical correlation analysis).

In addition to burnout, negative productivity was also found to be an important outcome variable. Negative productivity was found to be causally related to anxiety and depressed mood, but not to stress. Matteson and Ivancevich (1987) found that productivity was negatively related to stress, while Perez and Wilkerson (1998) argue that productivity is especially reduced by more clinical forms of psychological illness (e.g., anxiety and depressed mood).

This study found support for Perez and Wilkerson's (1998) argument, as only anxiety and depressed mood were positively related to negative productivity. Other than the more clinical nature of anxiety and depressed mood, this study could find no further theoretical justification for such a finding. One plausible explanation is that not all forms of stress are bad, and some forms of stress may actually improve productivity. By contrast, anxiety and depressed mood can always be considered negative affect states, and when an individual is grappling to any extent with symptoms of anxiety or depressed mood, their effort expenditure will be reduced as they are forced to expend energy on the emotional

state itself (Abramson et al., 1989).

Stress, however, should not always be considered a negative affect state. This line of reasoning is based on the concept of eustress (or good stress) which "produces a state of challenge coupled with disruptive pleasure" (Bhagat et al., 1995, p. 203). Some degree of stress acts to keep people motivated, unlike anxiety and depressed moods which have few, if any, redeeming characteristics (Quick et al., 1992). This line of argumentation is supported by the earlier works of Kahn (1983) who found that the amount of stress experienced by workers is U-shaped, suggesting that too few work demands, for example, may be as stressful as too many. Lagrange multiplier tests did not suggest that a path should be added from job stress to negative productivity, thus providing additional support to this study's theory that all forms of stress should not necessarily be viewed as having a negative impact on productivity.

9.1.5 Coping and Supervisor Support

9.1.5.1 Coping

The results of the study indicated that employees used two very different categories of coping strategies depending upon the level of symptomatology they were experiencing. For those employees not experiencing high levels of anxiety, stress or depressed mood, informal coping methods including help from family and friends, exercise and help from work colleagues were the most often utilized coping strategies. Use of these theories may prevent symptoms of psychological distress from escalating. Gender differences (controlling for job type) were found to exist with women utilizing help from family and friends and help from work colleagues significantly more than men. This finding supports

the work of Defares et al. (1984) and Lazarus and Folkman (1984) who found that women seek social support to cope with psychological problems while men engage in more intrapersonal forms of coping.

For employees grappling with high levels of stress, anxiety and depressed mood, more formal methods of coping were utilized, including the utilization of EAP's and seeking professional help. This finding seems logical, as more serious forms of psychological distress call for more formal methods of coping (Perez and Wilkerson, 1998). Significant gender differences also emerged with respect to the utilization of EAP's and professional help, with women being more likely than men to seek out formal coping mechanisms. Such a finding provides further support for the notion that men are more likely to deal with even severe forms of psychological distress on their own, while women are more likely to admit to having problems and seeking help for those problems (Ibid.).

It should be noted, however, that the regression results involving coping strategies and levels of psychological distress yielded very low R^2 values. This finding strongly suggests that very little of the variance in stress, anxiety and depressed mood in this sample was caused by coping strategies. As this study did not employ a longitudinal design, we are unable to draw meaningful conclusions about the long term impact of various coping strategies on levels of psychological distress. Therefore, the results of the study, with respect to coping strategies, should be viewed with some degree of caution, and future studies would be well served by examining a more broad spectrum of coping strategies (e.g., both functional and dysfunction coping strategies), using longitudinal designs.

9.1.5.2 Supervisor Support

In terms of supervisor support, respondents reported high levels of both supportive and non-supportive supervisor behaviours, with slightly higher levels of non-supportive behaviours being reported. Job type differences existed within the sample, with lower compensation bands being more likely to report non-supportive supervisor behaviours. This finding suggests that front-line employees report higher amounts of non-supportive supervisors than employees at higher compensation bands. This finding is consistent with the work of Babin and Boles (1998) who found that front-line employees in a service environment reported low levels of supervisor support.

The relationship between supportive and non-supportive supervisor behaviours and stress, anxiety and depressed mood can be considered moderately strong (statistically significant correlations ranging from .214 to .277). Supportive and non-supportive behaviours displayed the same relative strength in bivariate correlations and regression analyses on the three forms of psychological distress, albeit in opposite directions. Supportive behaviours were negatively related to stress, anxiety and depressed mood, while non-supportive behaviours had a positive relationship.

The finding that the relationships between supportive and non-supportive behaviours and stress, anxiety and depressed mood had approximately the same relative strength, in opposite directions, appears at odds with the work of Nelson (1990) who found that non-supportive supervisor behaviours had a stronger relationship with stress than supportive supervisor behaviours. Nelson's work corresponds to the view that people are more likely to internalize negative feedback, and dismiss positive feedback (see Stokes

and McKirnan, 1989). However, it should be noted that Nelson (1990) measured supervisor support as a single continuum, and this study separated supervisor behaviours into two variables: supportive and non-supportive. This difference may explain the discrepancy in the findings between the results of Nelson (1990) and this study.

Once again, it should be noted that the regression results involving supervisor support and levels of psychological distress yielded very low R^2 values. This finding strongly suggests that very little of the variance in stress, anxiety and depressed mood in this sample could be explained by supervisor support. Therefore, the results of the study, with respect to the impact of supervisor support on stress, anxiety and depressed mood should be viewed with some degree of caution.

9.1.6 The Structural Equation Models

Three structural equation models were created in this study, all with acceptable goodness-of-fit and levels of parsimony. A main model involving the entire sample was created, and separate male and female models were developed. As the hypothesized relationships between antecedents and levels of psychological distress, and outcomes and levels of psychological distress have already been discussed, this section will: 1) discuss the interrelationships among antecedents, and the interrelationships among outcomes, and 2) discuss the non-hypothesized relationships that emerged as significant.

9.1.6.1 Interrelationships Between Antecedents and Outcomes

In terms of the interrelationships amongst antecedents, job stress, and role overload shared the strongest correlation (.575). The main theoretical justification for such a relationship is that the more stress at work, the more likely an employee will experience

perpetual feelings of being rushed, ultimately leading to a decreased ability to manage efficiently (Duxbury and Higgins, 1994). When an individual experiences high levels of role overload, high job demands can appear overwhelming, leading to increased job stress (Ibid). In other words, persons experiencing high levels of role overload have many competing demands on their time. These competing demands can lead to higher levels of job stress, as stressors from the work environment add additional pressure on an already hectic daily schedule. An equally plausible explanation is that perceptions of role overload, are themselves a stressor, and therefore, contribute directly to stress levels.

Perceived control was found to have the same negative correlation (-.242) with both role overload and job stress. The degree of control an individual feels he/she has over his/her life will directly (negatively) effect the level of job stress experienced by the individual (a similar argument as was made for the relationship between perceived control and stress). This line of reasoning is consistent with the work of Karasek (1990) who found that individuals in high control environments were more able to cope with high work demands. While an employee may also be juggling competing roles, if that person believes that he/she has the roles they are juggling under control, they are less likely to report high levels of role overload.

In terms of outcomes, burnout was found to have a strong correlation with negative productivity (.575). Individuals experiencing symptoms of burnout have been found to reduce effort expenditure, leading to decreased productivity (Maslach and Jackson, 1986). This study found that individuals who reported high levels of negative productivity (i.e., low productivity) were most likely to also report high levels of burnout symptomatology.

9.1.6.2 Non-Hypothesized Relationships

In terms of non-hypothesized relationships, Lagrange multiplier tests revealed that both job stress and role overload were causally related to burnout. Studies have existed for some time that suggest consistent, negative job stress will, over time lead to burnout (for a review see Lee and Ashforth, 1996). This finding has strong appeal, for just as global stress, was found to strongly contribute to the onset of burnout, it is logical to assume that stress originating from the workplace would do the same.

Role overload was also found to causally effect the onset of burnout. This finding is consistent with some of the work and family literature (e.g., Greenhaus and Parasuraman, 1986), that has found people who report high levels of role overload were more likely candidates for burning-out. The more roles a person has to juggle, the more likely they are to burnout, as the total demands on time and energy associated with work and multiple roles are too great to perform the roles adequately or comfortably (Higgins et al., 1992).

The addition of the two causal paths from job stress and role overload to burnout represents a deviation from the a-priori and hypothesized causal models. This finding would suggest that antecedents, psychological distress and outcomes cannot be so readily placed into tidy categories, but have intricate inter-relationships.

For instance, burnout could also be considered a form of psychological distress. Due to the strength of burnout in the model, shown by the strong causal paths emanating from both antecedents and forms of psychological distress, burnout could be considered the disease of the new millennium. Until the stressors and competing time demands of

employees are systematically addressed by employers, working Canadians may continue to wage an unwinnable war.

While the finding that variables cannot be so readily placed into well defined categories may be considered a limitation of the hypothesized model, it can also serve to reinforce the study's findings, as relationships were detected in the data that were not initially predicted. The final causal model does, with the exception of the above noted paths, look remarkably similar to the hypothesized model, with all but two of the causal paths (which were removed due to Wald tests) found to be statistically significant in the predicted directions.

10. Conclusions

This section discusses the primary conclusions of the study, proposed intervention strategies, implications of the study for employees, employers, mental health professionals and future occupational research, and concludes with the study's benefits and limitations.

10.1 Primary Conclusions

This study has incorporated anxiety and depressed mood into a comprehensive evaluation of employee mental health. While previous organizational research on employee well-being has focussed on stress, this study provides a more intricate understanding of workplace psychological phenomena. This examination included an assessment of the individual and organizational antecedents and outcomes of stress, anxiety and depressed mood. Such an examination was long overdue, and establishes that both individual and organizational antecedents contribute to the onset of stress, anxiety and depressed mood. In turn, the three forms of psychological distress were found to lead to important consequences for both individual well-being and organizational effectiveness.

The structural models provide powerful evidence of the hypothesized relationships between antecedents, forms of psychological distress (stress, anxiety and depressed mood) and outcomes. The hypothesized model of Employee Mental Health was largely supported (with the exception of two causal paths that were removed due to Wald tests).

A review of the literature revealed that no other study has modelled the antecedents, and outcomes of stress, anxiety and depressed mood simultaneously. In particular, the addition of anxiety and depressed mood provides a much richer

understanding of employee mental health than could be inferred by studying stress alone or lumping all psychological phenomena into one variable.

This section will begin by providing conclusions surrounding the prevalence, comorbidity, antecedents, and outcomes of stress, anxiety and depressed mood. In addition, the ramifications of non-hypothesized relationships that emerged as statistically significant will be discussed. The implications of finding absenteeism to be a non-significant outcome variable also merits some concluding remarks. Finally, the ramifications of the primary gender differences found in this study will be addressed, along with the importance of controlling for job type in examinations of gender differences.

10.1.1 The Prevalence of Stress, Anxiety and Depressed Mood

This study used a conservative threshold level of 3.0 (on a scale of 1 to 5) to determine the prevalence of the sample experiencing heightened levels of stress, anxiety and depressed mood. At this threshold level, nearly one-quarter of the sample was experiencing heightened levels of stress, while 14% were experiencing heightened levels of anxiety, and 15% were experienced heightened levels of depressed mood. These findings support a recent Canadian study by Perez and Wilkerson (1998), who found that approximately one-quarter of the working population suffers from psychological problems.

These findings have profound implications for employees, employers and the Canadian health care system. While the intervention and implications sections of this chapter will examine the implications of the prevalence of stress, anxiety and depressed mood for employees and employers, the long term ramifications for the Canadian health care system are worth considering.

The Disability Adjusted Life Year (DALY) scale considers the global burden of disease over a lifetime (Perez and Wilkerson, 1998). Because stress, anxiety and depressed mood can develop into chronic conditions, lasting for many years, their DALY score is quite high (Ibid). In fact, the global burden of disease due to psychological conditions is predicted to increase from 10.5% (in 1998) to 14% in the year 2020, outpacing even cardiovascular disease (Perez and Wilkerson, 1998). Thus, the importance of treating psychological problems including stress, anxiety and depressed mood upstream (before symptoms occur) cannot be overstated. The costs to Canadian society, involved with continued spiralling levels of stress, anxiety and depressed mood would place a heavy strain on our health care system (CMHA, 1995; Perez and Wilkerson, 1998). This reality reinforces the importance of developing interventions both within and outside the workplace to reduce the number of individuals experiencing heightened levels of psychological distress.

10.1.2 The Comorbidity of Stress, Anxiety and Depressed Mood

This study found that stress, anxiety and depressed mood are highly interrelated negative affect states. In addition to strong bivariate correlations, stress, anxiety and depressed mood were found to account for a considerable degree of the variance in each of the three separate linear regressions performed (involving only stress, anxiety and depressed mood). Stress and depressed mood were found to share the strongest relationship, followed by anxiety and depressed mood, and finally stress and anxiety.

The strong relationship found between stress an depressed mood suggests that organizational researchers who have solely focussed on stress, may not have a complete

understanding of employee mental functioning. Organizations may be interested to know that stress was found to have a very strong relationship with depressed mood, as prolonged exposure to stressful situations may lead to potentially damaging consequences for both employees and the organization's bottom line.

The findings of this study reinforce the importance of studying stress, anxiety and depressed mood as separate variables in future studies of employee mental health.

10.1.3 Antecedents of Stress, Anxiety and Depressed Mood

The main causal model found that job stress and role overload each causally effected levels of stress, anxiety and depressed mood, while perceived control was found to only causally effect stress and anxiety.

Job stress was found to be the most important antecedent as it reported consistently strong causal relationships with all three forms of psychological distress. Job stress was the most powerful antecedent variable in the canonical correlation analysis. In addition, job stress was the only antecedent in the causal model to causally effect all three forms of psychological distress without significant gender differences (controlling for job type).

Role overload was found to causally effect levels of stress, anxiety and depressed mood for women, yet only causally effect levels of stress for men. Because role overload was the only variable in the model to have path coefficients with statistically significant gender differences, it is a critical variable to understand. Significant differences existed in the means of role overload for men and women (see Appendix B). These differences were also observed in the canonical correlation findings (although role overload was still clearly important for men in the male canonical correlation). Collectively, the results

involving role overload suggest that women are finding it more difficult than men to perform all of their life roles adequately and comfortably. While we have speculated that the causes for increased perceptions of role overload in women may be largely due to trying to meet the cultural expectations of being a good employee, wife, mother, eldercare provider etc., organizations should be aware that the degree of role overload in their female employees needs to be systematically addressed.

Perceived control emerged as the weakest latent construct yet had a significant causal effect (negative) on stress and anxiety, while no significant relationship was found to exist with depressed mood. In other words, Karasek's (1990) view that high control reduces stress was supported. Additionally, perceptions of control were negatively, causally related to anxiety, but not to depressed moods. Thus, organizations who seek to increase employees' sense of control, through empowerment of decision making and other means, will help to reduce stress and anxiety, but do little to directly influence depressed mood.

Collectively, the results surrounding the antecedent variable relationships suggest that reducing levels of job stress would decrease the symptomatology of stress, anxiety and depressed mood in the sample. Similarly, interventions aimed at alleviating role overload (or helping employees juggle competing roles) would potentially decrease the amount of employee stress, and, additionally, the amount of anxiety and depressed mood in women. Finally, the emergence of perceived control as a significant antecedent variable further establishes the importance of personality variables in the onset or perpetuation of psychological distress. While perceived control is a personality variable, and thus

organizations may perceive they can do very little to influence personality traits, organizations armed with the results of this study may be able to implement interventions designed to empower employees, or attempt to provide them with a greater sense of control over their work and non-work lives.

With reports of job stress and role overload increasing for both men and women (see Adams et al., 1996; Duxbury and Higgins, 1994), this study raises serious concerns regarding the way we structure our work and non-work lives. When so much of Canadian's waking hours are devoted to work, very little time is left over to perform non-work roles adequately or comfortably. It should not be surprising that persistent negative stressors at work, coupled with the inability to perform non-work roles comfortably, can lead to serious psychological problems. This study found that psychological health may be the price of the persistent job stress and role overload being experienced by an increasing number of Canadians. Such findings raise fundamental questions concerning the nature of work in our lives, including the pace of our lives and the value placed on our non-work identities.

With the inevitable improvements in information technology, Canadians have not reaped the benefits of more time for our non-work roles (Hage and Powers, 1992). Instead, many Canadians attempt to keep pace with the improvements in information technology, with the result being a society more "wired" than ever before (Perez and Wilkerson, 1998). The findings of this study suggest that forces which produce job stress or reduce our ability to perform non-work roles adequately or comfortably (e.g., "information overload", and time pressures) will lead to increased stress, anxiety and

depressed mood.

10.1.4 Outcomes of Stress, Anxiety and Depressed Mood

In terms of outcomes, stress, anxiety and depressed mood were all found to strongly causally effect burnout. This finding has strong implications for both employees, and employers, as burnout is known to have profound effects on employee well-being and an organization's bottom line (Maslach and Jackson, 1986). Burnout may be considered a form of psychological distress, and this study warns that it may be the disease which marks the beginning of the new millenium.

In addition, anxiety and depressed mood were found to causally effect negative productivity. This finding suggests that individuals suffering from anxiety and depressed mood must expend energy on dealing with their emotional problems; energy that reduces their productivity. Such a finding also has important ramifications for employers, whose bottom line will be reduced by decreased productivity.

Linking psychological problems to the organizations's bottom-line performance may be a necessary precondition to organizational action. Future studies should attempt to replicate and further explore the bottom line ramifications of stress, anxiety and depressed mood. The burnout of employees is a cost most employers cannot afford, especially in times of skill shortages (see Murphy, 2000). In addition, in an increasingly global marketplace, organizations cannot afford to be negatively affected by reduced productivity from employees grappling with psychological problems that were, at least in part, brought on by workplace antecedents.

10.1.5 Non-Hypothesized Relationships

Strong causal relationships were found in the non-hypothesized relationships between job stress and burnout, and role overload and burnout. The finding that job stress directly influences the onset of burnout reinforces the importance of developing interventions designed to reduce workplace stressors. In addition, the finding that role overload directly effects the onset of burnout supports the importance of developing interventions to help employees juggle their work and non-work roles.

Collectively, the non-hypothesized relationships reveal that employee mental-health is more complicated than the a-priori model of antecedents, psychological distress and outcomes. This study found direct relationships between antecedents and outcomes, suggesting that some variables (e.g., job stress and role overload) have a direct impact on the bottom line (e.g., negative productivity) and an individual's long term consequences (e.g., burnout). Future studies examining employee mental health may want to be cautious in continuing to use the well established model (developed by Beehr and Newman, 1978) of antecedent factors causing psychological distress, which, in turn, cause individual and organizational consequences.

10.1.6 Absenteeism

The finding that absenteeism was not significantly related to stress, anxiety and depressed mood is deserving of some concluding remarks. Recent research has suggested that Canadians take more time off for mental/emotional problems than any other reason (Perez and Wilkerson, 1996). The findings of our study lead to a speculative conclusion that individuals are going to work while experiencing heightened levels of

stress, anxiety and depressed mood. As our survey was performed in 1998, before the economic upswing in Canada, concerns over job security may have motivated people with elevated levels of psychological distress to remain working (i.e., not take time off to deal with their problems).

This conclusion has important ramifications for both employees and employers. Research has suggested that the longer the exposure to negative events in the work environment, the worse the problems of stress, anxiety and depressed mood become (Kivimaki et al., 1997). Therefore, in our sample, employees who are "toughing it out" at work may find themselves dealing with more chronic forms of psychological distress as time passes. This study would suggest that individuals with heightened levels of stress, anxiety and depressed mood are most susceptible to burnout and productivity declines.

For the organization, this finding may reflect a perceived inability on the part of employees to take time off for psychological reasons. This perception, whether based in reality or not, may ultimately impact the bottom line of the organization. Organizations need to ensure that they are sending clear signals to their employees that taking time off for psychological problems is acceptable, while focussing intervention efforts on eliminating negative job stressors and being more receptive to the non-work roles of employees.

10.1.7 Gender Differences

Key gender differences emerged with respect to the prevalence of stress, anxiety and depressed mood. Women (controlling for job type) were found to be significantly more likely to report heightened levels of anxiety and depressed mood than men. However,

gender differences with respect to stress disappeared with the introduction of job type as a control variable.

This finding has important implications. The majority of the organizational literature involving employee well-being has focused on stress in the workplace. The finding that stress does not significantly differ between men and women when job type is controlled, calls into question previous research results regarding gender differences in levels of stress, where job type was not controlled (e.g., Defares et al., 1984; Nelson and Hitt, 1992).

The second major gender difference finding involves the impact of role overload on stress, anxiety and depressed mood. The male model of Employee Mental Health found that only the path from role overload to stress was statistically significant. In contrast, in the female model of Employee Mental Health role overload was found to have statistically significant path coefficients with stress, anxiety and depressed mood.

This finding also has important implications. First, role overload was found to lead to increased levels of stress in both men and women. This finding suggests that the multiple role demands of men are causing them to feel increased levels of stress, despite research findings that suggest multiple role demands only have a significant relationship with stress in women (e.g., Barnes and Maple, 1992). Second, while men may be increasingly feeling "stressed" as a result of competing role demands, women are feeling increased levels of anxiety and depressed mood, in addition to stress. This finding could suggest that women are more likely than men to worry about how well they are juggling their competing role demands (a symptom of anxiety), and to be feeling down or

immobilized with respect to changing their current role demand situation (a symptom of depression). Strong perceptions of role overload were found to have more profound effects on the psychological health of women than men.

10.1.8 Job Type

A concluding remark should be made with respect to the importance of controlling for job type when examining gender differences. By controlling for job type, this study was able to determine if a gender difference was caused by hierarchical position (and thus was considered a job type confound) or was a true gender difference. As noted previously, much of the organizational literature has failed to control for job type, and, therefore, the previous research results with respect to gender differences and mental health should be viewed with some degree of scepticism. Only five of the studies variables (see Appendix B) possessed gender differences in their mean scores (while controlling for job type). This finding would suggest that much of the differences attributed to gender in the organizational and psychological literatures concerning mental health, with the exceptions noted in this thesis, may be job type confounds. Therefore, this study strongly advocates for the use of job type as a control variable in future examinations of gender differences in the mental health of employees.

10.2 Toward Interventions

In conducting research on employee mental health, a desired outcome is to effect positive change in the lives of employees and the effectiveness of organizations. Toward this goal, the results of this study can be used to suggest intervention strategies.

The scope of the research findings may leave the reader, or more certainly a manager, in a state of uncertainty as to what the results mean for an organization, or more directly how the results can be utilized to create meaningful interventions that minimize the incidences and consequences of mental health problems in the workplace. The desire to reduce the ill-effects of stress is certainly nothing new for managers. As Perez and Wilkerson (1998) discussed, the question for managers is no longer if they should address stress (and by extension mental health), but how.

In 1987, Donavon reported that private industry had spent millions of dollars to develop work stress management programs for workers designed to reduce psychological problems. His conclusions, from more than a decade ago, emphasized that stress management programs were not effective at modifying psychological problems or helping employees deal with psychological problems. In the 1990's the business case for effective organizational intervention in psychological problems, which the findings of this study strongly support, has argued that helping employees deal with psychological strain early on (or preventing psychological strain from escalating) is in the long term economic interest of the firm. Perez and Wilkerson (1998, p. 314) write,

> It is becoming obvious that mental illness is a business issue and that mental health is a business asset. We must learn to talk about it in practical, constructive ways. Fundamentally, non-medical health strategies are best united around economic and social change where human health is seen as the principal currency underwriting the company's human capital base.

Such a shift may be slow in coming. However, this study provides compelling evidence that psychological problems are causally related to burnout and negative productivity; two problem areas that can have crippling effects on an organization's bottom

line. Still, the challenge that lies ahead in dealing with psychological problems in the workplace is to address the issue as a long term problem that underlies the productivity (and thus profitability) of the firm. Discussing the required shift in organizational thinking about productivity and profitability, Perez and Wilkerson (1998, p. 222) state, "The new agenda for management require the measurement of productivity to be reordered in order to quantify the return on investment in employee health".

The question remains since the time of Donavon's (1987) study, of how to develop meaningful interventions that detect early warning signs of mental health problems, directly reduce psychological symptomatology, and help employees deal with psychological problems on a daily basis.

Based on the comprehensive work of Snow and Kline (1995) employee mental health interventions should be aimed at: 1) reducing identified stressors (and by extension any antecedent of psychological distress), 2) modifying employee perceptions, 3) improving individual coping skills, and 4) enhancing social support from within and outside the organization.

This study found that job stress, perceived control, and role overload were antecedents that causally effected levels of stress, anxiety and depressed mood. Organizational interventions, based on the findings of this study, should be aimed at reducing job stress, increasing perceptions of control, and reducing role overload.

Reducing job stress involves identifying the negative stressors in the work environment and attempting to eliminate them. Future research could isolate job stressors that are found to be strongly related to stress, anxiety and depressed mood. Such

variables could include interpersonal conflict at work, unrealistic work expectations, non-supportive supervisors, and the lack of emotional support, to name but an obvious few.

In addition, interventions aimed at increasing perceptions of control may also reduce levels of stress and anxiety, but not depressed mood. While perceived control is a personality variable, that is to some extent, influenced by biological predispositions, environmental forces (including workplace interventions) are known to effect perceptions of control (Hurrel and Murphy, 1991). In particular, empowering employees to make decisions that affect their work, increasing the flexibility of work, reducing bureaucracy, and flattening organizational structures may all help to raise levels of perceived control.

Interventions aimed at reducing role overload should lead to reduced stress in men and women, and additionally, reduced anxiety and depressed mood in women. Bolstering emotional support at work, including interventions designed to acknowledge and attempt to alleviate some of the burdens associated with life's competing roles may be particularly useful. Flexible work arrangements (including flex-time, telework and job sharing), on-site day care, and a general sense of caring and flexibility in the hours of work may all reduce feelings of role overload.

Combined, the above interventions could have a profound impact on decreasing levels of stress, anxiety and depressed mood, and hence, reducing levels of burnout and negative productivity.

Snow and Kline (1995) also call for the modification of employee perceptions. What the authors mean by this is altering the views of employees to reflect the realities and efforts the organization is making to improve well-being. Walsh (1987) argues that if

organizations want to be perceived as caring about, and valuing employees, the proof must exist to substantiate their claim. That is, organizations must make a conscious choice to value the well-being of their employees, and back up these values with behaviours in order to alter employee perceptions. Open communication, supportive supervisor relationships, and the development of an emotionally caring and supportive culture may be key elements to reducing job stress and role overload. In support of this argument organizational support was found to have relatively strong, negative, bivariate correlations with stress (-.340), anxiety (-.230), and depressed mood (-.296).

The third area to focus interventions on (according to Snow and Kline (1995)) is individual coping skills. This study found that employees did not utilize the coping mechanisms examined in this study to any great extent, regardless of the level of psychological distress they were experiencing. While employees grappling with high levels of stress, anxiety and depressed mood were found to utilize EAP's and seek professional help significantly more than employees with lower levels of stress, anxiety and depressed mood, even individuals suffering from high levels of psychological distress did not utilize coping mechanisms to any great extent. This finding suggests that all employees would benefit from training on the benefits of improving individual coping skills, and the range of coping mechanisms available to each employee.

The most often utilized coping strategies: seeking help from family and friends, exercise, and seeking help from work colleagues, along with utilizing EAP's and seeking professional help were all found to be used significantly more often by women (controlling for job type). This finding suggests that the coping skills of men in particular can be

improved.

Organizations can attempt to reduce the stigma associated with asking for help by educating employees on the symptoms of mental problems and the importance of seeking help before problems escalate. However, education alone is unlikely to change social norms. The behaviour of senior male managers, may be particularly critical, as other men have been found to adhere to the social norms set out by their role models (see Faludi, 1999). If senior managers are open to discuss their own problems (in handling stress, juggling competing roles, or dealing with personal problems, for example), a culture may be created where men feel more comfortable coming forward and asking for help.

Finally, enhancing social support from within and outside the organization is thought to be crucial to mental health interventions (Snow and Kline, 1995). This study found support for the position that supervisors should be made aware (through formal training) of their strong impact, through supportive and non-supportive behaviours, on the well-being of their subordinates. Supervisors could be trained to understand what behaviours can be considered supportive and non-supportive and the impact of these behaviours on employees. Supportive behaviours should be encouraged and rewarded through formal performance appraisal mechanisms (e.g., 360 degree feedback). In addition, employees could receive training on the importance of collegial support in helping fellow employees get through difficult times. Finally seeking support from family and friends, albeit falling outside the work realm, should be encouraged and facilitated, as such forms of support help to create a social safety net.

10.3 Implications

This section will discuss the implications of the study's findings for 1) employees, 2) employers, 3) mental health professionals, and 4) future occupational research.

10.3.1 Implications for Employees

This study has shown that job stress, perceived control and role overload causally effect the onset or perpetuation of stress, anxiety and depressed mood, which lead to burnout and negative productivity. Thus, the results of this study show that there are severe individual consequences associated with high levels of stress, anxiety and depressed mood.

Employees armed with information that job stress, role overload and perceived control play a major causal role in their mental health can attempt to better manage their environments. Specifically, employees can try to identify the stressors at work that they perceive are negatively affecting their sense of well-being. Once these stressors are identified, action can be taken to reduce or eliminate the impact of the stressor.

For example, if an employee is stressed due to unrealistic deadlines, it may be possible to discuss the situation with the employees supervisor and find a solution that meets both organizational and individual needs. Of course it may not always be possible, or even desirable, to alleviate all stressors, but being aware of the factors that are inducing negative stress, may be the first step in gaining more control over work life.

Similarly, the employee can attempt to better manage competing roles and time demands, and weigh the costs associated with increased responsibilities. Learning how to say "no" to increased time pressures will reduce feelings of role overload, and decrease

incidences of stress, anxiety and depressed mood.

Employees can also be role models for developing a supportive work culture. While this strategy may be particularly important for senior managers (due to their influence over other employees), all employees contribute to developing a supportive work atmosphere. This would include being supportive to fellow workers struggling through difficult periods in their lives, and developing positive relations with supervisors, where possible. Positive relations with supervisors may also serve to reduce the likelihood of developing stress, anxiety and depressed mood.

Finally, this study reveals that stress, anxiety and depressed mood causally effect burnout. Employees who are experiencing symptoms of stress, anxiety or depressed mood can develop effective coping skills in order to decrease the chances of further negative outcomes. These coping skills may include seeking professional help and utilizing the services offered through an EAP, if symptoms warrant. All employees, however, should strive to create a social safety net that would include supportive family and friends, and work colleagues to buffer the effects of stress, anxiety and depressed mood, so they do not escalate into burnout.

10.3.2 Implications for Employers

The study found that stress, anxiety and depressed mood have a direct effect on the 'bottom-line' of organizations, due to reduced productivity and the burnout of employees. Therefore, it is in the best interest of organizations to address the issue of mental health in the workplace and eliminate antiquated taboos. Organizational interventions should be aimed at reducing job stress and role overload, and attempting to

increase the perceived control of employees (discussed in the intervention section). Supervisors should be trained to understand their profound influence on their subordinates well-being, and all employees could be provided training on the signs of mental ill-health, the importance of dealing with symptoms early, and of supporting fellow work colleagues.

10.3.3 Implications for Mental Health Professionals

For mental health practitioners the results of the study provide compelling evidence that the workplace should be viewed as an important environmental variable for mental health and illness. In the past, mental health professionals have used the ability to work as a gauge on how serious a mental condition should be considered. This study suggests that the psychological and psychiatric literatures could benefit from incorporating the effects of the organization on employee mental health. In these times of rapid change, the redefinition of the employment contract, and unprecedented technological change, traditional work environments are quickly becoming relics of the past. In order to understand human functioning, the psychological literatures must keep pace with the changes in the manner in which we work, and the impact of these changes on our mental health. This study found that job stress, role overload and perceived control should be considered important variables to include in future clinical research surrounding stress, anxiety and depressed mood.

This study suggests that there is no one solution in developing interventions to reduce psychological distress. Rather, stress, anxiety and depressed mood should be considered separately, and mental health professionals should incorporate strategies for dealing with stressors originating from within the workplace into their intervention

approaches. In addition, burnout should be considered a form of psychological distress, that must be treated well upstream in order to reduce its crippling impact on the health care system and the livelihood of individuals and organizations.

Mental health professionals should also be aware of the implications of the primary gender differences that emerged from this study. No significant gender differences (controlling for job type) were reported in the prevalence of stress, however, significant gender differences (controlling for job type) were reported in anxiety and depressed mood. Thus, our study supports recent Canadian research (e.g., Perez and Wilkerson, 1998) who found that women are more likely to report anxiety and depression in Canada. Mental health strategies to combat anxiety and depressed mood should take this information into account, while not dismissing the fact that a considerable number of men suffer from anxiety and depressed mood.

Finally, mental health professionals should be made aware of the implications of our findings involving role overload. Role overload was found to causally effect stress, anxiety and depressed mood in women, while only effecting stress in men. This finding suggests that mental health professionals should focus on developing strategies to help women cope with competing life roles. For example, mental health professionals could lead the way in educating the working public of the dangers, especially for women, of trying to juggle incompatible role demands, and call upon employers for greater job flexibility.

10.3.4 Implications for Future Occupational Health Research

This study provides a compelling argument that future occupational health research should incorporate the expertise of various fields (e.g., organization, psychological,

psychiatric, sociological) in future studies of employee mental health. This study establishes important links between the clinical and organizational literatures, and reveals that workplace factors do play an important predictive role in the mental health of the working population. Future research would benefit from longitudinal designs that could examine stress, anxiety and depressed mood over time. Longitudinal designs could assess the impact of stressors, social support and coping mechanisms, for example, over a period of time to determine what factors have the greatest influence on levels of stress, anxiety and depressed mood. In addition, the specific factors that most influence the identified antecedents would shed valuable additional light on what areas to target interventions toward. Finally, the key variables and structural models developed in this study require replication in future studies of occupational health. For example, the differential impact of role overload on levels of psychological distress for men and women is deserving of considerable future research attention.

10.4 Benefits of the Study

The first benefit of the study is a greater understanding of workplace mental health by combining organizational and psychological perspectives. Neff (1985, p. 228) suggests that "to carry out the kinds of studies (on workplace mental health) that are needed, the mental health professional would have to be more closely integrated with industry than has hitherto been the case". Integrating the psychological and organizational literatures with respect to employee mental health represents a significant contribution to the theoretical knowledge base.

The second benefit of the study is in addressing a very real need in our organizations and society. Changes in the workplace to reduce stress, anxiety and depressed mood are not only desirable but essential in a society that values the quality of life of its members, and the output and productiveness of its industries. This study concurs with other research which asserts that organizations, despite decentralization trends and the emergence of team structures, participative decision making, quality of life initiatives, total quality management initiatives, etc., may actually be in the process of creating more stressful, controlling and mentally damaging work environments (e.g., Barker, 1993; Karasek and Theorell, 1990). Taken to the extreme, we may be getting close to the point where our work environments are "totally incompatible with human physiological capabilities" (Karasek and Theorell, 1990, p. 2). High incidences of stress, anxiety and depression have been reported in the literature (Jones and Boye, 1992; Kendall and Watson, 1989), and rapidly increasing incidences of occupational burnout (Maslach and Jackson, 1986; Perez and Wilkerson, 1998) bear witness to real and serious mental health problems. This study takes a major step toward addressing the issues of employee mental health in a rapidly changing work environment.

Finally, one of the most significant benefits of the study, in terms of its usefulness to employees suffering with forms of psychological distress in the workplace, are the intervention strategies that emerged from the study's findings. This study recognizes that interventions should be aimed at both prevention and treatment. Developing interventions for the improvement of employee mental health is a daunting task, and one that has not been comprehensively addressed in the literature. Pearlin and Aneshensel (1986, p. 435)

summarize part of the challenge in the following passage, "The real problem we face in developing effective interventions is not that we are in danger of overcomplicating the issues, but that, in ignoring the complexities, we shall continue to be less effective than we should like to be". By identifying the key antecedent variables of stress, anxiety and depressed mood, this study was in a position to develop well targeted intervention strategies.

A central question for organizations and managers is how to create the environment where a state of eustress can exist and lead to healthy employee involvement and achievement while eliminating the psychological, emotional and physiological distress that all too often typify the work environment (Quick et al., 1992). This question has gone unanswered, as there is a lack of published reports of worksite stress programs that attempt to intervene at the interface between the individual employee and the organization (for commentaries see DeFrank and Cooper, 1987; Heaney et al., 1995b; Ivancevich et al., 1990). It is particularly puzzling to wonder why these questions have not been systematically addressed given the obvious applied value to organizations, in addition to the undeniable benefits for employees. Organizations may not be equipped with the tools nor the information to act on issues of mental health. In addition organizations may perceive, to their peril, that the responsibility for the mental health of their employees is outside their mandate. The findings of this study take a major step toward addressing these needs, by showing organizations the profound effects of psychological disorders on the bottom line, and attempting to reduce the societal taboo of discussing and rectifying mental health problems at work.

10.5 Limitations

The study suffers from five primary limitations. The first involves studying stress, anxiety and depressed mood in the absence of biological and socialization factors. It has been established, from the psychological and psychiatric literatures, that some individuals may be predisposed to stress, anxiety and depression (see Bourne, 1990; Kendall and Watson, 1989). Similarly, socialization experiences, especially relations with parental figures (Bourne, 1990), and traumatic life events (Billings and Moos, 1982) are known to precipitate conditions of anxiety and depression in particular. The omittance of biological factors (including clinical assessments of mental and physical health) and socialization experiences is a primary, yet necessary, limitation of this research.

This study assumes biological and socialization antecedents to be present without any attempt at further validation. It could therefore be argued that the present study is simply a "snapshot in time" into the lives of individuals and is thereby unable to account for the totality of factors that lead to the onset of high stress, anxiety and depressed mood. This line of argumentation is altogether true, yet does not necessarily diminish the value of the research. A central goal of the research is to link organizational practices to the mental health of employees. In so doing, the study does not simplify the complex root causes of stress, anxiety and depressed mood. Rather, this in-depth examination of the relationship between the workplace and employee mental health provides important information regarding the intricate relationship between mental health and organizations.

The second limitation of the study is its cross-sectional nature. Longitudinal studies into mental health undoubtedly provide better opportunities at drawing causal inferences

between variables. Future research into the relationship between the organization and employee mental health may be well served by longitudinal designs. However, our limited understanding of how psychological conditions interact with organizational variables makes a cross-sectional study an important step in building the requisite theoretical foundation needed for longitudinal research. In addition, on a practical level we opted for a large cross-sectional sample in hopes of having strongly generalizable results. After making such a decision, a follow-up study involving more than 2,500 individuals would prove to be a daunting task. For both of these reasons the cross-sectional research design is an appropriate fit to the research objectives of this study.

The third limitation of this study is the development of a model that has not yet been tested. That is, the final causal models were based on data-driven model modifications and must be viewed as tentative until the results are replicated in other studies. While it is appropriate to view the developed models as tentative until they are reproduced with other samples, this limitation is common for all initial causal models.

The fourth primary limitation involves the selection of variables used in this study. Due to constraints imposed by the case-study organization on questionnaire length, potentially important variable were omitted from the present study. For example, type A or type B personality traits, dysfunctional coping strategies, and social support from outside the workplace may have each made an important contribution to the research. However, as is the case in any study, not all variables deemed to be potentially relevant can be measured, due to practical constraints.

The final primary limitation of this research involves the choice to use a single firm, from a single industry as the sample. The results from this study could therefore be argued to not be generalizable to other firms in the industry nor to other industries. However, the potential ill-effects of our case-study approach were minimized by ensuring a large sample size that was representative of employees from all levels of the organization, men and women, and was made up of employees from offices across Canada. Thus, although this research can be considered a case-study, it should be noted that the study population is uncommonly diverse, as it represents employees from coast to coast in Canada. This reality strengthens the ability to generalize the results.

APPENDICES

APPENDIX A

Questionnaire Measures

*Note latent constructs included in the causal modelling process have a bracket with an F and the corresponding variable number inside (i.e., (F5)), while the variable number that corresponds to a manifest variable indicator is provided next to the question (i.e., (V10)).
Measures of Psychological Distress

Stress (Global) - (F4)
On a five point Likert scale where 1 = never, 3 = sometimes, and 5 = always, how often in the last three months have you:
1. Been upset because something happened unexpectedly? (V17)
2. Felt that you were unable to control important things in your life? (V18)
3. Felt nervous or "stressed"? (V19)
4. Felt confident about your ability to handle your personal/family problems? (V20)
5. Felt that things were going your way? (V21)
6. Felt that you could not cope? (V22)
7. Been able to control irritations in your life? (V23)
8. Felt you were on top of things? (V24)
9. Been angered because of things that happened that were outside of your control? (V25)

Anxiety (F5)
On a five point Likert scale where 1 = never, 3 = sometimes, and 5 = often, here is a list of physical symptoms. Please indicate how often each has happened to you in the past three months:
1. Headaches (V26)
2. Faintness or dizziness (V27)
3. Pains in the heart or chest (V28)
4. Poor appetite (V29)
5. Heart pounding or racing (V30)
6. Feeling tense or nervous (V31)
7. Trouble breathing or shortness of breath for no apparent reason (V32)
8. Trouble sleeping (i.e., trouble getting to sleep or staying asleep) (V33)

Depressed Mood (F6)

On a five point Likert scale where 1 = never, 3 = sometimes, and 5 = always, how often in the last three months have you:

1. Felt that you just couldn't get going? (V34)
2. Felt that you were a worrier? (V35)
3. Felt that your memory wasn't all right? (V36)
4. Had personal worries that made you feel sick? (V37)
5. Felt that nothing turned out right for you? (V38)
6. Wondered if anything was worthwhile anymore? (V39)

Antecedent Measures

Perceived Control (F2)

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, to what extent do you agree or disagree with the following statements?

1. There is really no way I can solve some of the problems I have (V6)
2. Sometimes I feel I am being pushed around in life (V7)
3. I have little control over the things that happen to me (V8)
4. I can do just about anything I set my mind to (V9)
5. What happens to me in the future depends mostly on me (V10)
6. There is little I can do to change many of the important things in my life? (V11)

Positive Affectivity

On a five point Likert scale, where 1 = has little impact on me and 5 = (stated in brackets below), how do you feel about this situation?

1. Someone compliments me (Euphoric)
2. I receive positive feedback from my boss (my day is perfect)
3. I have accomplished something valuable (extremely satisfied)
4. I hear a speech by a leader whose ideas I respect (inspired)

Negative Affectivity

On a five point Likert scale, where 1 = has little impact on me and 5 = (stated in brackets below), how do you feel about this situation?

1. I do or say something I should not have done (extremely guilty)
2. Someone criticizes me (extremely upset)
3. People do things to annoy me (extremely tense)
4. I see a sad movie (extremely sad)

Job Security

On a five point Likert scale where 1 = very worried, 3 = mixed feelings, and 5 = very good, please circle the number that best describes how you feel about:
1. Your future with the organization?
2. The future of others in your organization?

Mobility

On a five point Likert scale where 1 = very difficult, 3 = neither difficult nor easy, and 5 = very easy,
1. How easy do you feel it would be for you to find a job with another employer with the same pay and benefits?

Underemployment

On a five point Likert scale where 1 = developing, 3 = proven/meets requirements, and 5 = exemplary/exceeds requirements,
1. How would you assess your competency/skill level with respect to your present job?

Work Involvement

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:
1. I would be happy if I didn't have to work at all.
2. My main interest in work is to get enough money to do the other things I want to do.
3. What I do at work is more important than the money that I earn.

Job Stress (F1)

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:
1. I work under a great deal of tension. (V1)
2. I have felt fidgety or nervous as a result of my job. (V2)
3. If I had a different job my health would probably improve. (V3)
4. Problems associated with my job have kept me awake at night. (V4)
5. I often "take my job home with me" in the sense that I think about it when doing other things. (V5)

Role Overload (F3)

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:
1. I feel I have more to do than I can comfortably handle. (V12)
2. I feel physically drained when I get home from work. (V13)
3. I feel emotionally drained when I get home from work. (V14)
4. I feel I have to rush to get everything done each day. (V15)
5. I feel I don't have enough time for myself. (V16)

Work to Family Conflict

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. My work schedule often conflicts with my personal life.
2. My family dislikes how often I am preoccupied with my work while I am at home.
3. My work takes up time I would like to spend with my family or friends.
4. The demands of my job make it difficult to be relaxed at home.

Family to Work Conflict

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. Making arrangements for my children while I work involves a lot of effort.
2. Making arrangements for my elderly parents while I work involves a lot of effort.
3. My family/personal life often keeps me from spending the amount of time I would like on my job/career.
4. My family/personal life often interferes with my responsibilities at work (i.e, getting to work on time, working overtime)

Organizational Culture

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. This organization promotes an environment that supports a balance between work and personal life.
2. This organization's policies are supportive of my family/personal needs.
3. I have seriously thought about leaving this organization to work for an organization with greater job flexibility.
4. If I were unable to work long hours, it would limit my career opportunities.
5. Family responsibilities make it difficult to for people to advance in this organization.
6. This organization rewards individuals based on performance.
7. It is not acceptable in this organization to say "no" to more work.
8. Even if did the best job possible, this organization would fail to notice.
9. This organization takes pride in my accomplishments at work.
10. I feel adequately compensated for any extra effort I devote to my job (i.e., overtime)
11. The job I do has status and prestige (people look up to it and think it's important).

Organizational Support

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. My job is clearly important to the success of the company.
2. It takes real skill and experience to do my job well.
3. This organization tries to make my job as interesting as possible.
4. This organization is willing to extend itself in order to help me perform my job to the best of my ability.
5. The organization disregards my best interests when it makes decisions that affect me.
6. This organization cares about my opinions.
7. This organization fails to appreciate any extra effort from me.

Flexibility of Work

On a five point Likert scale where 1 = very difficult, 3 = neither difficult nor easy, and 5 = very easy, how easy or difficult is it for you:

1. To vary your working hours (i.e., arrival and departure times)?
2. To spend some of your regular work day working at home?
3. To take holidays when you want?
4. To take time off for training?
5. To interrupt your work day for personal/family reasons and then return to work?
6. To keep your regular work hours?
7. To arrange your work schedule (i.e., shifts, overtime) to meet family/personal commitments?

Work Expectations

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, people I work with expect that any person doing a job such as mine should:

1. Take on work-related duties and responsibilities even though these activities may interfere with their free time.
2. Finish job-related tasks by working extra hours or bringing work home whenever necessary.

Outcome Measures

Life Satisfaction

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Job Satisfaction

On a five point Likert scale where 1 = very dissatisfied, 3 = neutral, and 5 = very satisfied, please indicate how satisfied you are with:

1. Your job in general.
2. The amount of pay you get.
3. The number of hours you work.
4. The schedule your working hours.
5. The sorts of things you do on the job.
6. Your current workload.
7. Your ability to meet the needs of your client.
8. Your opportunities for advancement.

Physical Health

On a five point Likert scale where 1 = poor, 3 = average, and 5 = excellent:

1. All things considered, how has your physical health been in the last three months?
2. In the last three months, how many days have you been unable to work or carry out your usual activities because of health problems? (answer provided in number of days)

Burnout (F7)

On a five point Likert scale where 1 = never, 3 = sometimes, and 5 = always, how often in the last three months have you:

1. Felt difficulties were piling up so high that you could not overcome them? (V40)
2. Felt "burned out" by your job? (V41)
3. Felt "frustrated" by your job? (V42)
4. Felt fatigued when you got up in the morning and had to face another day on the job? (V43)
5. Felt "used up" at the end of the workday? (V44)
6. Felt emotionally drained by your job? (V45)

Positive Productivity

On a five point Likert scale where 1 = never, 2 = monthly, 3 = weekly, 4 = daily, and 5 = more than once daily, how often in the last three months:

1. Did you feel encouraged to come up with new/better ways of doing things?
2. Did you spend time trying to develop your skills and abilities to do a better job?
3. Did you deliver your work on time?
4. Did you have a sense of achievement in performing your job?

Negative Productivity (F8)

On a five point Likert scale where 1 = never, 2 = monthly, 3 = weekly, 4 = daily, and 5 = more than once daily, how often in the last three months:

1. Did the stresses and strains from working long hours reduce your productivity? (V46)
2. Did the amount of work you had interfere with how well it got done? (V47)
3. Did you feel frustrated when trying to do your job? (V48)
4. Did you stay late to finish work? (V49)
5. Did schedule changes or unplanned work reduce your productivity? (V50)

Organizational Commitment

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements:

1. I am willing to put in a great deal of effort in order to help this organization be successful.
2. I promote this organization to my friends as a great organization to work for.
3. I would accept almost any type of job assignment in order to keep working for this organization.
4. I have a clear picture of what this organization's values are.
5. I find that my values and my organization's values are very similar
6. I am proud to tell others that I am a part of this organization.
7. My organization really inspires the very best in me in the way of job performance.
8. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.
9. I really care about the fate of this organization.

Absenteeism

In the last three months how many days have you:

1. Been unable to carry out your usual work activities because of health problems?
2. Been unable to work or carry out your usual work activities because of family-related problems (i.e., sick child, elder care problem, children's school activities)?
3. Taken a day off because you were emotionally, physically or mentally fatigued?
4. Taken a day off work because you just didn't feel like going to work that day?

<u>Moderating Measures</u>

Coping Strategies

On a five point Likert scale where 1 = never, 3 = sometimes, and 5 = always, how frequently do you use the following strategies to cope with psychological distress?

1. I refer to our ACCESS (Employee & Family Assistance program).
2. I use Childcare and Eldercare Info service.
3. I use RSVP.
4. I seek other types of professional help.
5. I get help from my manager.
6. I get help from my colleagues.
7. I get help from family and friends.
8. I exercise.
9. I meditate.

Supportive Supervisor Behaviours

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements, my supervisor:

1. Gives recognition when I do my job well.
2. Provides coaching when performance standards are not met.
3. Listens to my concerns.
4. Shares information with me.
5. Is available to answer questions.
6. Makes sure I have the tools/equipment I need to do my job.
7. Is effective at planning the work to be done.
8. Asks for input before making decisions that will affect my work.
9. Is trustworthy.
10. Gives me enough flexibility to arrange my work schedule to meet my personal needs.

Non-Supportive Supervisor Behaviours

On a five point Likert scale where 1 = strongly disagree, 3 = neutral, and 5 = strongly agree, how much do you agree or disagree with the following statements, my supervisor:

1. Displays favouritism in assigning work tasks and promotions.
2. "Puts me down" in front of colleagues or clients.
3. Only talks to me when I make a mistake.
4. Makes me feel guilty about time off for family/personal reasons.
5. Focuses on hours of work rather than output.
6. Has unrealistic expectations about how much work can be done.

Gender
1. What is your gender?

Job Type
1. Please indicate your compensation band (6 levels).

APPENDIX B

VARIABLE MEANS AND STANDARD DEVIATIONS

Variable	Sample		Men		Women	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Stress	2.63	0.59	2.51	0.57	2.66	0.60
Anxiety**	2.22	0.73	2.01	0.69	2.28	0.73
Depressed Mood**	2.24	0.76	2.04	0.70	2.30	0.77
Perceived Control	3.71	0.66	3.82	0.63	3.68	0.66
Positive Affectivity	4.03	0.59	3.94	0.57	4.05	0.58
Negative Affectivity**	3.53	0.68	3.25	0.64	3.62	0.66
Job Security	3.33	1.14	3.55	1.09	3.26	1.14
Underemployment	3.83	0.84	3.87	0.81	3.81	0.86
Mobility	3.06	1.17	3.39	1.15	2.94	1.15
Work Involvement	3.17	0.89	3.33	0.88	3.11	0.89
Job Stress	3.10	0.98	3.16	0.94	3.07	0.99
Role Overload**	3.39	0.98	3.01	0.92	3.53	0.97
Work to Family Conflict	1.99	0.82	1.97	0.84	2.00	0.77
Family to Work Conflict**	2.97	0.99	2.80	0.99	3.04	0.95
Org. Culture (Personal Life)	3.17	0.85	3.16	0.82	3.17	0.86
Org. Culture (Turnover)	2.24	1.24	2.26	1.22	2.23	1.24
Org. Culture (Long Hours)	3.41	0.99	3.56	0.93	3.35	1.00
Org. Culture (Performance)	3.32	0.77	3.33	.075	3.31	0.77
Org. Support	3.43	0.62	3.47	0.59	3.42	0.63
Flexibility of Work	3.11	0.82	3.27	0.77	3.05	0.83
Work Expectations	3.24	1.15	3.52	1.07	3.13	1.16
Life Satisfaction	3.32	0.80	3.33	0.78	3.32	0.81
Job Satisfaction	3.37	0.71	3.35	0.70	3.37	0.71
Physical Health	3.50	0.94	3.56	0.94	3.48	0.93

Burnout	2.89	0.90	2.80	0.91	2.91	0.90
Positive Productivity	2.98	0.58	3.02	0.59	2.97	0.58
Negative Productivity	2.32	0.84	2.39	0.81	2.30	0.85
Org. Commitment	3.72	0.67	3.74	0.61	3.71	0.68
Absenteeism	0.48	0.50	0.45	0.50	0.48	0.50

** Denotes significant gender differences in mean scores (controlling for job type) at $p < .05$.

ANALYSIS OF MEANS FOR VARIABLES WITH SIGNIFICANT GENDER DIFFERENCES (CONTROLLING FOR JOB TYPE)

Variable	Men		Women		F-value	Significance
	Mean	S.D.	Mean	S.D.		
Anxiety	2.02	0.58	2.26	0.67	6.79	.009
Depressed Mood	2.07	0.69	2.29	0.72	6.46	.011
Negative Affectivity	3.28	0.65	3.60	0.61	4.74	.030
Role Overload	3.11	0.80	3.49	0.77	7.81	.005
Family to Work Conflict	2.84	0.83	3.02	0.79	11.21	.001

APPENDIX C

FACTOR ANALYSIS OF ORGANIZATIONAL CULTURE

	Factor 1 Supportive of Personal Life	Factor 2 Rewards Performance	Factor 3 Encourages Long Hours	Factor 4 Encourages Turnover
Environment supports balance between work and personal life	.716			
Org. policies supportive of family/personal needs	.734			
Thought about leaving org. for greater job flexibility				.645
If unable to work long hours – limits career opportunities			.593	
Family responsibilities make it difficult to advance in org.	-.579			
Org. rewards individuals based on performance		.512		
Not acceptable to say no to more work			.586	
Did best job - Org. fails to notice		-.661		
Org. takes pride in my accomplishments		.629		
Adequately compensated for extra effort devoted to job		.601		
Job has status and prestige (people look up to it)		.443		
Percentage of Variance Explained	29.3%	22.5%	7.2%	4.8%

APPENDIX D

MALE CANONICAL CORRELATION RESULTS FOR ANTECEDENT VARIABLES

Variable	S.C.	Corr.	S.R.C.	Rank
Antecedents:				
Perceived Control	-.566	-.458	.259	2
Positive Affectivity	-.093	-.085	.008	
Negative Affectivity	.118	.152	.018	
Job Security	-.154	-.102	.016	
Underemployment	.113	.088	.010	
Mobility	-.070	-.066	.005	
Work Involvement	-.125	-.085	.011	
Job Stress	.597	.463	.276	1
Role Overload	.501	.426	.213	3
Work-Family Conflict	.205	.177	.036	
Family-Work Conflict	.105	.076	.008	
Org. Culture (Personal Life)	-.114	-.148	.017	
Org. Culture (Encourages Turnover)	.182	.142	.026	
Org. Culture (Encourages Long Hours)	.103	.099	.010	
Org. Culture (Rewards Performance)	-.138	-.119	.016	
Org. Support	-.204	-.195	.040	
Flexibility of Work	-.145	-.137	.020	
Work Expectations	.040	.058	.002	
Psychological Distress:				
Stress	.864	.417	.356	2
Anxiety	.722	.369	.281	3
Depressed Mood	.827	.440	.363	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

Female Canonical Correlation Results for Antecedent Variables

Variable	S.C.	Corr.	S.R.C.	Rank
Antecedents:				
Perceived Control	-.551	-.438	.241	2
Positive Affectivity	-.087	-.098	.009	
Negative Affectivity	.201	.170	.034	
Job Security	-.146	-.099	.014	
Underemployment	.106	.082	.009	
Mobility	-.067	-.057	.004	
Work Involvement	-.120	-.091	.011	
Job Stress	.586	.453	.265	1
Role Overload	.545	.459	.250	2
Work-Family Conflict	.218	.175	.038	
Family-Work Conflict	.161	.119	.019	
Org. Culture (Personal Life)	-.108	-.140	.015	
Org. Culture (Encourages Turnover)	.173	.140	.024	
Org. Culture (Encourages Long Hours)	.114	.111	.013	
Org. Culture (Rewards Performance)	-.114	-.100	.011	
Org. Support	-.202	-.191	.039	
Flexibility of Work	-.147	-.141	.021	
Work Expectations	.053	.078	.004	
Psychological Distress:				
Stress	.858	.411	.353	2
Anxiety	.746	.384	.286	3
Depressed Mood	.835	.433	.361	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

APPENDIX E

FACTOR ANALYSIS OF POSITIVE AND NEGATIVE PRODUCTIVITY

	Factor 1 Negative Productivity	Factor 2 Positive Productivity
Stresses of long hours reduce productivity	.779	
Amount of work interferes with quality	.797	
Encouraged to come up with better ways of doing work		.685
Spend time developing skills/abilities to do a better job		.643
Feel frustrated when trying to do job	.719	
Deliver work on time		.457
Stay late to finish work	.548	
Sense of achievement in performing job		.677
Schedule changes/unplanned work reduce productivity	.713	
Percentage of Variance Explained	29.9%	19.3%

APPENDIX F

GENDER SPECIFIC CANONICAL CORRELATION RESULTS FOR OUTCOMES

MALE CANONICAL CORRELATION RESULTS FOR OUTCOME VARIABLES

Variable	S.C.	Corr.	S.R.C.	Rank
Outcomes:				
Life Satisfaction	-.349	-.398	.139	4
Job Satisfaction	-.148	-.231	.034	
Physical Health	-.355	-.397	.141	3
Burnout	.612	.553	.338	1
Positive Productivity	-.120	-.126	.015	
Negative Productivity	.569	.461	.262	2
Org. Commitment	-.126	-.220	.027	
Absenteeism	.217	.290	.063	
Psychological Distress:				
Stress	.789	.445	.351	2
Anxiety	.671	.413	.277	3
Depressed Mood	.770	.480	.370	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

FEMALE CANONICAL CORRELATION RESULTS FOR OUTCOME VARIABLES

Variable	S.C.	Corr.	S.R.C.	Rank
Outcomes:				
Life Satisfaction	-.356	-.404	.144	3
Job Satisfaction	-.140	-.247	.035	
Physical Health	-.339	-.400	.136	4
Burnout	.595	.551	.328	1
Positive Productivity	-.117	-.129	.015	
Negative Productivity	.560	.459	.257	2
Org. Commitment	-.120	-.222	.027	
Absenteeism	.229	.281	.065	
Psychological Distress:				
Stress	.777	.453	.352	2
Anxiety	.695	.404	.281	3
Depressed Mood	.791	.466	.369	1

S.C. = Standardized Coefficient
Corr. = Canonical Variate Correlation
S.R.C. = Standardized Ratio Coefficient

APPENDIX G

FREQUENCIES AND CROSS-TABULATION RESULTS OF RESPONDENTS EXPERIENCING HEIGHTENED LEVELS OF STRESS, ANXIETY AND DEPRESSED MOOD AND UTILIZING EAP's AND PROFESSIONAL HELP

STRESS * Refer to our EAP Crosstabulation

	Refer to our EAP	Never 1	2	3	4	Often 5	Total
STRESS	1.00	3	1				4
	1.10	2	1				3
	1.20	11					11
	1.30	9	1	1		1	12
	1.40	19	2				21
	1.50	20	1	2	1		24
	1.57	2					2
	1.60	33	3	1			37
	1.70	59	4	2			65
	1.78	1					1
	1.79	3					3
	1.80	63	6	1		1	71
	1.90	73	3	1			77
	2.00	87	10	2	1		100
	2.01	2					2
	2.10	89	15	3	1		108
	2.12	1					1
	2.20	109	13	7			129
	2.23	2					2
	2.27	1					1
	2.30	124	22	8	2		156
	2.34	2					2
	2.40	118	15	10	1		144
	2.45	2		1			3
	2.50	122	18	5	2		147

2.51	2					2
2.51	1					1
2.56	1					1
2.60	126	8	10			144
2.63	1					1
2.67	3			1		4
2.70	131	18	12	2	1	164
2.78	2	1	1			4
2.80	125	24	12	1		162
2.89	2					2
2.90	108	21	12			141
3.00	125	20	10	2	1	158
3.10	78	21	9	1		109
3.11	1					1
3.20	83	12	15	4	1	115
3.30	66	16	9		2	93
3.33	1	1	1			3
3.40	54	8	11	1		74
3.50	34	9	8	1	1	53
3.60	33	2	9	2		46
3.70	14	6	7	1	1	29
3.77	1					1
3.80	17	4	5	2		28
3.90	11	1	2	1		15
4.00	10					10
4.10	3	1				4
4.20		2		1		3
4.30			1			1
4.40	2		1		1	4
4.50			2		1	3
4.60	2	1				3
4.70				1		1
4.80			1			1
Total	1994	291	182	29	11	2507

STRESS * Seek professional help Crosstabulation

		Never				Often	Total
		1	2	3	4	5	
STRESS	1.00	4					4
	1.10	3					3
	1.20	11					11
	1.30	12					12
	1.40	20		1			21
	1.50	22		1	1		24
	1.57	2					2
	1.60	34	2			1	37
	1.70	61	2	1		1	65
	1.78	1					1
	1.79	3					3
	1.80	57	7	6	1		71
	1.90	70	3	2	1	1	77
	2.00	89	3	7	1		100
	2.01	2					2
	2.10	91	6	10	1		108
	2.12	1					1
	2.20	112	7	8	2		129
	2.23	2					2
	2.27	1					1
	2.30	129	13	11	2	1	156
	2.34	2					2
	2.40	126	7	8	1	2	144
	2.45	3					3
	2.50	131	9	6	1		147
	2.51	2					2
	2.51	1					1
	2.56	1					1
	2.60	115	13	16			144
	2.63	1					1
	2.67	2	2				4
	2.70	130	10	18	4	2	164
	2.78	4					4
	2.80	127	11	18	5	1	162
	2.89	1		1			2
	2.90	112	14	13	1	1	141
	3.00	123	8	22	4	1	158

	1	2	3	4	5	Total
3.10	77	15	15	1	1	109
3.11	1					1
3.20	80	12	18	3	2	115
3.30	71	4	12	4	2	93
3.33	3					3
3.40	44	11	15	4		74
3.50	34	4	8	4	3	53
3.60	29	2	12	3		46
3.70	18	1	7	3		29
3.77	1					1
3.80	17	4	6		1	28
3.90	11	1		2	1	15
4.00	9		1			10
4.10	4					4
4.20	3					3
4.30		1				1
4.40			2	1	1	4
4.50			1	1	1	3
4.60	1	1	1			3
4.70					1	1
4.80	1					1
Total	2012	173	247	51	24	2507

ANXIETY * Refer to our EAP Crosstabulation

		Refer to our EAP					Total
		Never				Often	
		1	2	3	4	5	
ANXIETY	1.00	43	3				46
	1.13	51	2	1			54
	1.17	1					1
	1.25	89	12	2		1	104
	1.31	2					2
	1.38	127	10	5			142
	1.45	1		1			2
	1.50	142	12	6			160
	1.55		1				1

1.59	4					4
1.63	133	11	4	3		151
1.73	3					3
1.75	147	24	16	1		188
1.88	139	14	12			165
2.00	132	23	13	1		169
2.02	2					2
2.13	129	19	8	2		158
2.16	4					4
2.25	105	21	7	2	1	136
2.30	2	1				3
2.38	101	15	12	2	1	131
2.44	4	1				5
2.50	116	17	7	3		143
2.58	3		1			4
2.63	75	15	7	1		98
2.68	1					1
2.72	3					3
2.75	71	8	13	1		93
2.81	1					1
2.88	59	20	10	1	1	91
3.00	78	14	11		1	104
3.13	51	16	7			74
3.14	1		2			3
3.19	1					1
3.25	26	9	4	2		41
3.28	1					1
3.38	34	9	10	3		56
3.50	30	1	4	2	1	38
3.56	1					1
3.63	20	3	4			27
3.64	1					1
3.70	1					1
3.75	15	2	4		2	23
3.75		1				1
3.88	14	1	3	1		19
4.00	8	2	2			12
4.13	7	1	2			10
4.25	1		2	1		4
4.38	7		1	1		9
4.45				1		1
4.50	3	2				5
4.63	2				2	4
4.75	2	1				3

		1	2	3	4	5	Total
	5.00			1	1	1	3
Total		1994	291	182	29	11	2507

ANXIETY * Seek professional help Crosstabulation

		Never				Often	Total
		1	2	3	4	5	
ANXIETY	1.00	46					46
	1.13	52		1		1	54
	1.17	1					1
	1.25	92	4	5	3		104
	1.31	2					2
	1.38	125	11	4	1	1	142
	1.45	1	1				2
	1.50	139	10	10	1		160
	1.55	1					1
	1.59	4					4
	1.63	138	5	5	2	1	151
	1.73	3					3
	1.75	160	11	12	4	1	188
	1.88	146	10	8		1	165
	2.00	143	5	18	2	1	169
	2.02	2					2
	2.13	124	16	13	3	2	158
	2.16	3	1				4
	2.25	103	12	18	2	1	136
	2.30	2	1				3
	2.38	101	11	16	3		131
	2.44	5					5
	2.50	115	14	12	1	1	143
	2.58	2	1	1			4
	2.63	75	8	11	4		98
	2.68	1					1
	2.72	3					3
	2.75	68	7	15	2	1	93
	2.81	1					1
	2.88	60	6	21	4		91

3.00	86	5	9	3	1	104
3.13	55	7	10	2		74
3.14	1		2			3
3.19			1			1
3.25	27	1	11	1	1	41
3.28	1					1
3.38	29	12	10	5		56
3.50	26	4	6		2	38
3.56	1					1
3.63	15	4	5	2	1	27
3.64	1					1
3.70			1			1
3.75	13	2	5		3	23
3.75			1			1
3.88	11	1	5	1	1	19
4.00	9		2		1	12
4.13	6	1	1	1	1	10
4.25	2		1	1		4
4.38	6	1	2			9
4.45				1		1
4.50	2	1	1	1		5
4.63	1		2		1	4
4.75	1		2			3
5.00	1			1	1	3
Total	2012	173	247	51	24	2507

DEPRESSED MOOD * Refer to our EAP Crosstabulation

	Refer to our EAP	Never 1	2	3	4	Often 5	Total
DEPRESS ED MOOD	1.00	117	11	3		2	133
	1.17	89	11	3	1		104
	1.33	135	16	7			158
	1.44	1					1
	1.50	128	16	1			145
	1.67	169	17	9	2		197
	1.83	173	17	9	1		200
	2.00	152	21	10	1		184
	2.03	2					2
	2.17	174	20	12	1	2	209
	2.22	1					1
	2.33	151	28	16			195
	2.42	2					2
	2.50	137	24	12	3		176
	2.61	6					6
	2.67	117	22	21	2	1	163
	2.81	1					1
	2.83	98	15	9	2		124
	3.00	100	23	17	2		142
	3.17	66	14	15	3	1	99
	3.19		1				1
	3.33	57	12	12	3	1	85
	3.50	34	7	9	2	1	53
	3.58	1	1				2
	3.67	30	3	4	1		38
	3.83	25	6	3	2	1	37
	4.00	15	3	6	1		25
	4.17	6	1		2		9
	4.33	2	1			1	4
	4.50	2	1	2			5
	4.67	2				1	3
	4.83	1		1			2
	5.00			1			1
Total		1994	291	182	29	11	2507

DEPRESSED MOOD * Seek professional help Crosstabulation

		Never				Often	Total
		1	2	3	4	5	
DEPRESS ED MOOD	1.00	125	3	5			133
	1.17	95	4	2	1	2	104
	1.33	145	6	6	1		158
	1.44	1					1
	1.50	126	8	8	2	1	145
	1.67	162	16	15	3	1	197
	1.83	171	13	14	2		200
	2.00	155	11	17	1		184
	2.03	2					2
	2.17	170	16	19	3	1	209
	2.22	1					1
	2.33	160	19	13	3		195
	2.42	1	1				2
	2.50	139	7	21	6	3	176
	2.61	6					6
	2.67	126	11	21	2	3	163
	2.81	1					1
	2.83	100	3	17	3	1	124
	3.00	105	12	21	3	1	142
	3.17	62	12	18	4	3	99
	3.19	1					1
	3.33	64	9	7	3	2	85
	3.50	27	9	11	3	3	53
	3.58	1		1			2
	3.67	23	4	9	2		38
	3.83	16	3	12	6		37
	4.00	18	3	3		1	25
	4.17	1	2	4	2		9
	4.33	2		1		1	4
	4.50	3	1	1			5
	4.67	2			1		3
	4.83	1		1			2
	5.00					1	1
Total		2012	173	247	51	24	2507

APPENDIX H

BIVARIATE CORRELATIONS OF PRIMARY VARIABLES

Variable	Stress	Anxiety	Depressed mood	Perceived control	Positive affectivity	Negative affectivity	Job security
Stress							
Anxiety	.558**						
Depressed mood	.733**	.627**					
Perceived control	-.476**	-.351**	-.486**				
Positive affectivity	-.176**	-.099**	-.167**	.217**			
Negative affectivity	.283**	.258**	.312**	-.180**	.247**		
Job security	-.328**	-.257**	-.319**	.319**	.170**	-.139**	
Mobility	-.066**	-.017	-.069**	.157**	.000	-.114**	.145**
Underemploy-ment	-.096**	-.039*	-.089**	.059**	.068**	-.040*	.065**
Work involvement	-.200**	-.132**	-.205**	.185**	.141**	-.132**	.156**
Job stress	.454**	.497**	.428**	-.242**	-.109**	.145**	-.292**
Role overload	.458**	.408**	.382**	-.242**	-.084**	.139**	-.202**
Work to family conflict	.337**	.336**	.273**	-.169**	-.065**	.065**	-.163**
Family to work conflict	.240**	.177**	.219**	-.190**	-.093**	.038	-.102**
Org. culture supportive of personal life	-.277**	-.229**	-.233**	.189**	.176**	-.026	.290**

Org. culture encourages turnover	.269**	.245**	.239**	-.160**	-.138**	.011	-.324**
Org. culture encourages long hours	.201**	.179**	.141**	-.101**	-.075**	.058**	-.186**
Org. culture rewards performance	-.237**	-.165**	-.204**	.204**	.253**	-.002	.346**
Org. support	-.340**	-.230**	-.296**	.290**	.295**	-.054**	.427**
Flexibility of work	-.272**	-.241**	-.220**	.221**	.148**	-.076**	.262**
Work expectations	.113**	.134**	.075**	.009	-.013	.029	-.003
Life satisfaction	-.498**	-.348**	-.477**	.454**	.206**	-.118**	.286**
Job satisfaction	-.405**	-.297**	-.354**	.279**	.254**	-.052**	.439**
Physical health	-.438**	-.473**	-.455**	.258**	.129**	-.122**	.182**
Burnout	.597**	.536**	.570**	-.271**	-.162**	.192**	-.316**
Positive productivity	-.171**	-.099**	-.161**	.172**	.223**	-.084**	.220**
Negative productivity	.433**	.354**	.358**	-.164**	-.111**	.095**	-.162**
Organizational commitment	-.312**	-.180**	-.271**	.248**	.338**	-.016	.374**
Absenteeism	.169**	.192**	.167**	-.109**	-.050*	.016	-.052**

n = 2507.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Variable	Mobility	Underemploy ment	Work involvement	Job stress	Role overload	Work to family conflict	Family to work conflict
Stress							
Anxiety							
Depressed mood							
Perceived control							
Positive affectivity							
Negative affectivity							
Job security							
Mobility							
Underemploy ment	.068**						
Work involvement	.058**	.072**					
Job stress	.066**	-.069**	-.078**				
Role overload	.042**	-.008	-.107**	.575**			
Work to family conflict	.111**	-.003	-.029	.560**	.710**		
Family to work conflict	.025	-.029	-.044*	.202**	.345**	.357**	
Org. culture supportive of personal life	-.112**	.006	.082**	-.393**	-.397**	-.443**	-.214**
Org. culture encourages turnover	.153**	.002	-.102**	.367**	.337**	.386**	.160**

Org. culture encourages long hours	.140**	.004	-.056**	.410**	.401**	.410**	.172**
Org. culture rewards performance	-.072**	-.034	.152**	-.259**	-.228**	-.199**	-.066**
Org. support	-.031	-.007	.189**	-.293**	-.238**	-.177**	-.105**
Flexibility of work	-.056**	.001	.094**	-.313**	-.351**	-.317**	-.191**
Work expectations	.128**	.06	.053**	.346**	.291**	.354**	.124**
Life satisfaction	.055**	.028	.191**	-.244**	-.262**	-.211**	-.158**
Job satisfaction	-.112**	.055**	.191**	-.414**	-.408**	-.345**	-.169**
Physical health	-.006	.021	.118**	-.333**	-.324**	-.239**	-.164**
Burnout	.036	-.053**	-.194**	.647**	.606**	.512**	.182**
Positive productivity	.059**	.094**	.232**	-.076**	-.048*	.027	-.068**
Negative productivity	.049**	-.055**	-.044**	.524**	.532**	.496**	.197**
Organization al commitment	-.068**	.056**	.282**	-.249**	-.211**	-.187**	-.081**
Absenteeism	.043*	-.015	-.116**	.094**	.113**	.065**	.149**

n = 2507.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Variable	Org. culture supportive of personal life	Org. culture encourages turnover	Org. culture encourages long hours	Org. culture rewards performance	Org. support	Flexibility of work	Work expectations
Stress							
Anxiety							
Depressed mood							
Perceived control							
Positive affectivity							
Negative affectivity							
Job security							
Mobility							
Underemploy ment							
Work involvement							
Job stress							
Role overload							
Work to family conflict							
Family to work conflict							
Org. culture supportive of personal life							
Org. culture encourages turnover	-.516**						

Org. culture encourages long hours	-.527**	.339**					
Org. culture rewards performance	.431**	-.345**	-.254**				
Org. support	.466**	-.391**	-.270**	.660**			
Flexibility of work	.429**	-.346**	-.269**	.320**	.359**		
Work expectations	-.279**	.171**	.393**	-.067**	-.057**	-.105**	
Life satisfaction	.250**	-.203**	-.105**	.281**	.335**	.225**	-.024
Job satisfaction	.433**	-.433**	-.296**	.534**	.580**	.430**	-.095**
Physical health	.194**	-.193**	-.136**	.175**	.234**	.218**	-.079**
Burnout	-.380**	.392**	.328**	-.315**	-.358**	-.339**	.233**
Positive productivity	.075**	-.103**	-.003**	.178**	.253**	.088**	.094**
Negative productivity	-.330**	.293**	.328**	-.218**	-.243**	-.272**	.295**
Organizational commitment	.426**	-.411**	-.194**	.512**	.596**	.279**	-.029
Absenteeism	-.057**	.093**	.066**	-.073**	-.103**	-.094**	.013

n = 2507.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Variable	Life satisfaction	Job satisfaction	Physical health	Burnout	Positive productivity	Negative productivity	Organization al commitment
Stress							
Anxiety							
Depressed mood							
Perceived control							
Positive affectivity							
Negative affectivity							
Job security							
Mobility							
Underemploy ment							
Work involvement							
Job stress							
Role overload							
Work to family conflict							
Family to work conflict							
Org. culture supportive of personal life							
Org. culture encourages turnover							

Org. culture encourages long hours							
Org. culture rewards performance							
Org. support							
Flexibility of work							
Work expectations							
Life satisfaction							
Job satisfaction	.400**						
Physical health	.339**	.271**					
Burnout	-.315**	-.500**	-.409**				
Positive productivity	.157**	.230**	.126**	-.146**			
Negative productivity	-.224**	-.424**	-.276**	.590**	.072**		
Organizational commitment	.323**	.540**	.211**	-.335**	.297**	-.232**	
Absenteeism	-.109**	-.104**	-.258**	.152**	-.097**	.093**	-.120**

n = 2507.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX I

PROPERTIES OF THE INITIAL MEASUREMENT MODEL

Construct and Indicators	Standardized Loading	Reliability	Variance Extracted Estimate
Job Stress (F1)		.845[a]	.620
V1	.755	.570	
V2	.825	.681	
V3	.765	.585	
V4	.842	.709	
V5	.742	.551	
Perceived Control (F2)		.750[a]	.450
V6	.601	.361	
V7	.688	.473	
V8	.780	.608	
V9	.619	.383	
V10	.621	.386	
V11	.701	.491	
Role Overload (F3)		.879[a]	.675
V12	.798	.637	
V13	.849	.721	
V14	.839	.704	
V15	.836	.699	
V16	.782	.612	
Stress (F4)		.840[a]	.437
V17	.657	.432	
V18	.764	.584	
V19	.713	.508	
V20	.567	.321	

V21	.677	.458	
V22	.698	.487	
V23	.584	.341	
V24	.686	.471	
V25	.574	.330	
Anxiety (F5)		.820[a]	.450
V26	.578	.334	
V27	.673	.453	
V28	.659	.434	
V29	.633	.401	
V30	.748	.560	
V31	.719	.517	
V32	.703	.494	
V33	.637	.406	
Depressed Mood (F6)		.832[a]	.550
V34	.727	.529	
V35	.710	.504	
V36	.663	.440	
V37	.784	.615	
V38	.813	.661	
V39	.739	.546	
Burnout (F7)		.900[a]	.660
V40	.623	.388	
V41	.852	.726	
V42	.817	.667	
V43	.834	.696	
V44	.852	.726	
V45	.871	.759	
Negative Productivity (F8)		.767[a]	.552

V46	.783	.613
V47	.798	.637
V48	.715	.511
V49	.571	.326
V50	.724	.524

a Denotes composite reliability.

APPENDIX J

GOODNESS-OF-FIT AND PARSIMONY INDICES FOR THE MALE AND FEMALE MODELS INCLUDING

ALL LATENT CONSTRUCTS

Model	Combined Model							Theoretical Model		
	Chi-square	df	NFI	NNFI	CFI	PR	PNFI	RNFI	RPR	RPFI
Final Measurement Model	249.72	128	.923	.938	.945	.688	.635	1.0	0	0
Final Theoretical Model (Total Sample)	267.99	132	.935	.944	.941	.710	.664	.937	.288	.270
Original Male Model	301.24	138	.856	.861	.877	.742	.635	.887	.281	.250
Original Female Model	282.83	138	.922	.935	.939	.742	.684	.969	.302	.293

Chi-square = The chi-square value associated with the model.
df = The degrees of freedom associated with the model.
NFI = Bentler and Bonnet's (1980) normed fit index, for assessing goodness-of-fit.
NNFI = Bentler and Bonnet's (1980) non-normed fit index, for assessing goodness-of-fit.
CFI = Bentler's (1989) comparative fit index, for assessing goodness-of-fit.
PR = James et al.'s (1982) parsimony ratio (calculated as the df of the model being studied / the df of the null model).
PNFI = James et al's (1982) parsimonious normed-fit index (calculated as (PR)(NFI)).
RNFI = Mulaik et al's (1989) relative normed fit index, reflects the fit in just the theoretical portion of the model.
RPR = Mulaik et al's (1989) relative parsimony ratio to determine the parsimony of the theoretical portion of the model.
RPFI = Mulaik et al.'s (1989) relative parsimony fit index to determine both fit and parsimony of the theoretical model (calculated as (RNFI)(RPR)).

To test the nomological validity of the male theoretical model a chi-square difference test was performed, where the theoretical model under study was compared to the final measurement model. If the chi-square for the measurement model is subtracted from the chi-square of the male theoretical model the resulting chi-square difference value is 301.24 - 249.72 = 51.52. The degrees of freedom for the test are equal to the difference between the df for the two models (138 - 128 = 10). The critical chi-square statistic with 10 df is

23.21 ($\underline{p} < .01$), and so the chi-square difference can be considered statistically significant. This finding shows that the original male model was unsuccessful in accounting for the relationships between latent constructs.

A specification search was conducted to arrive at a better fitting model. Wald tests confirmed that the paths from stress (F4) to negative productivity (F8), and perceived control (F2) to anxiety (F5) could be deleted without hurting the model's goodness-of-fit chi-square. These findings were consistent with the paths dropped for the entire model. The subsequent revisions to the male model are provided in the Results section of the thesis.

Similarly, to test the nomological validity of the female theoretical model a chi-square difference test was conducted, where the female theoretical model was compared to the final measurement model. If the chi-square for the measurement model is subtracted from the chi-square of the theoretical model the resulting chi-square difference value is 282.83 - 249.72 = 33.11. The degrees of freedom for the test are equal to the difference between the $\underline{df}$ for the two models (138 - 128 = 10). The critical chi-square statistic with 10 $\underline{df}$ is 23.21 ($\underline{p} < .01$), and so the chi-square statistic can be considered statistically significant. This findings shows that the original female model was unsuccessful in accounting for the relationships between latent constructs.

A specification search was conducted to arrive at a better fitting model. Wald tests confirmed that the paths from stress (F4) to negative productivity (F8), and perceived control (F2) to anxiety (F5) could be deleted without hurting the model's goodness-of-fit chi-square. These findings were consistent with the paths dropped for the entire model.

The subsequent revision to the female model is provided in the Results section of the

thesis.

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