

**A Comprehensive Study of Stress on Individuals
In Middle-Management Positions in Public Accounting**

by

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(ABSTRACT)

Accounting is generally regarded as a stressful occupation. Research suggests that the most stressful positions in a public accounting firm are those of middle management. Given the pivotal role these individuals play in the accounting firm, it is important to gain an understanding of the stressors they encounter and the consequences of those stressors, as well as any possible moderating effects of personal characteristics.

This study of stress in public accounting was conducted to address the following research questions: What environmental factors (both work-related and home-related) contribute to stress at the middle-management level in public accounting? What are the consequences of this stress? Are the consequences of stress modified by the personal characteristics of the individual?

Data for the study were collected through questionnaires mailed to a national sample of certified public accountants. The sample consisted of two groups--1,593 individuals presently employed in public accounting positions, and 340 individuals who were employed in public accounting firms but have recently switched to non-public accounting jobs. Of the 1,933 individuals sampled, approximately 1,200 (62%) responded.

The results of the study suggest that middle-management level public accountants are most stressed by home-related factors (conflict with leisure and conflict with family roles) as well as work-related factors (time pressure and quantitative overload). This stress is associated with several negative outcomes--job-related tension, job dissatisfaction, propensity to leave public accounting, and turnover. Gender and personality type are important moderators of the relationships between the stressors and stress outcomes.

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Chapter 1

INTRODUCTION

Accounting is generally regarded as a stressful occupation, and recent research has focused on the sources of job-related stress in the public accounting profession.¹ Along with this interest in stress has come an awareness of the potential costs of stress both to the individual² and to the organization.³ Research suggests that the most stressful positions in a public accounting firm are those of middle management.⁴ Given the pivotal role these individuals play in public accounting, it is important to gain an understanding of the stressors they encounter and the consequences of those stressors, as well as any possible moderating effects of personal characteristics.

¹ Gaertner, James F. and John A. Ruhe, "Job-Related Stress in Public Accounting," *Journal of Accountancy*, June 1981, p. 68.

² Weick, Karl E., "Stress in Accounting Systems," *The Accounting Review*, April 1983, p. 352.

³ Choo, Freddie, "Job Stress, Job Performance, and Auditor Personality Characteristics," *Auditing*, Vol. 5, No. 2, Spring 1986, p. 29.

⁴ *Op. cit.*, Gaertner and Ruhe, p. 70.

1.1 STRESS

Although a great deal of research on stress has been done, there is no universally accepted definition of stress. In discussing the various definitions used, it is helpful to categorize them into three groups: stimulus-based definitions, response-based definitions, and interactional definitions.⁵

The first approach (stimulus-based definitions) defines stress as the characteristics of the environment that are disruptive or disturbing, and which give rise to a stress reaction, or strain, within the individual. In the second approach (response-based definitions), stress is defined as the individual's response to environmental factors. The third approach (interactional or stimulus-response definitions) emphasizes the interactive nature of the individual and the environment. Here stress is viewed as resulting from the lack of fit between an individual and his or her environment.

1.1.1 Stimulus-Based Definitions

In a stimulus-based definition, stress is described as some characteristic of the environment that is disruptive or disturbing. This stress gives rise to a stress reaction, or strain, within the individual. Hall and Mansfield⁶ adopt a stimulus-based definition of stress when they state: "Stress is an external force operating on a

⁵ Cox, Tom, *Stress*, University Park Press, Baltimore, 1978, p. 3.

⁶ Hall, D. J. and Mansfield, R., "Organizational and Individual Response to External Stress," *Administrative Science Quarterly*, Vol. 16, 1971, p. 533.

system, be it an organization or a person. Strain is the change in the state of the internal system which results from this external stress.” Unlike the response-based definition, which treats stress as a dependent variable, the stimulus-based definition treats stress as an independent variable. This relationship is diagrammed in Figure 1 and is expressed in Symonds’⁷ assertion that: “stress is that which happens to the man, not that which happens in him; it is a set of causes, not a set of symptoms.”

Stimulus-based definitions of stress can be compared to those found in engineering or the physical sciences, particularly Hooke’s Law of Elasticity.⁸ In physics, “stress” is the external force or load placed on an object. “Strain” is the impact or deformation which results. Hooke’s Law states that if the strain produced by a given stress falls within the “elastic limit” of the material, when the stress is removed, the material will return to its previous condition. If, however, the strain goes beyond the “elastic limit,” the object will be permanently changed. Applying this law to humans suggests that up to a certain point stress can be tolerated by people. Beyond some limit, though, stress creates permanent damage.

Several problems are associated with stimulus-based definitions of stress. First, it is difficult to identify the characteristics of the environment that are stressful. Even when these characteristics can be identified, it is hard to quantify the degree of stress present. Second, this approach assumes that a stress-free situation is the ideal condition. Research has found, however, that individuals function best under conditions of moderate stress.⁹ The third, and most important, problem associated

⁷ Symonds, Sir C. P., Use and Abuse of the Term Flying Stress. In Air Ministry, Psychological Disorders in Flying Personnel of the Royal Air Force, Investigated During the War, 1939-1945, H.M.S.O., London, 1947, as referenced in Cox, 1978, pg. 13).

⁸ *Op. cit.*, Cox, p. 13.

⁹ See Welford, A. T. “Stress and Performance,” *Ergonomics*, Vol. 16, p. 567, 1973, for a discussion outside the area of accounting. For a discussion of the relationship between stress and performance in an accounting context, see *Op cit*, Choo, Freddie, 1986, p28.

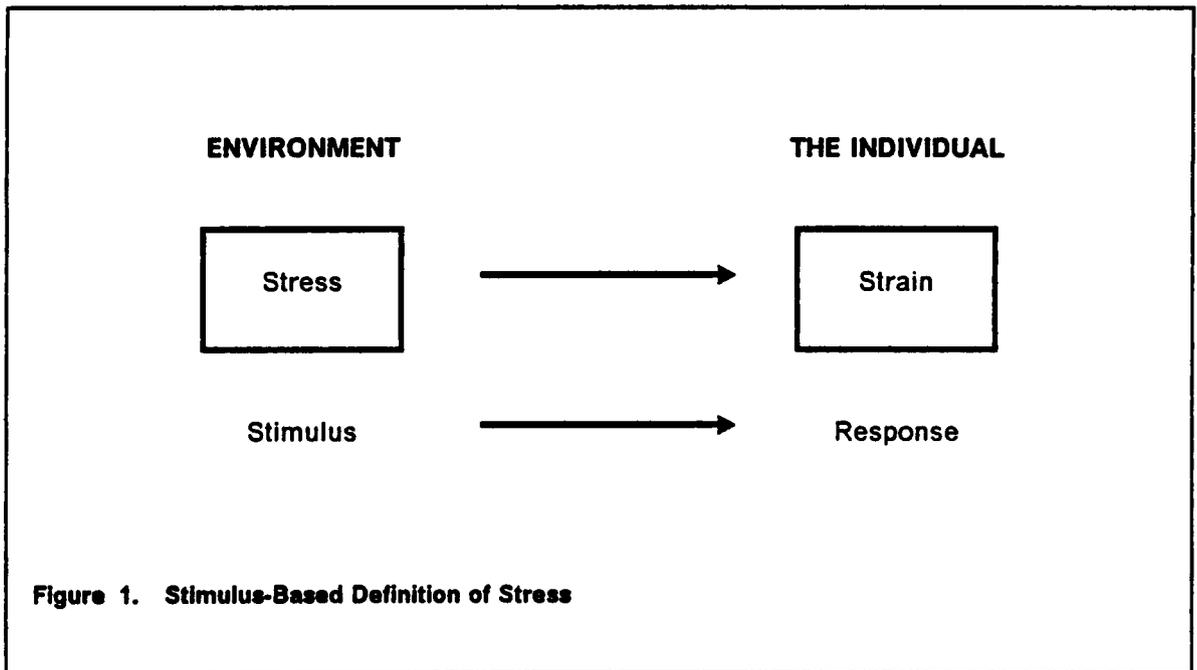


Figure 1. Stimulus-Based Definition of Stress

with stimulus-based definitions is that situational characteristics alone may not be sufficient to predict individual response. Two individuals subjected to the same level of stress may experience very different levels of strain. In fact, one may experience great strain while the other experiences none. This approach thus fails to recognize the importance of individual differences.¹⁰

1.1.2 Response-Based Definitions

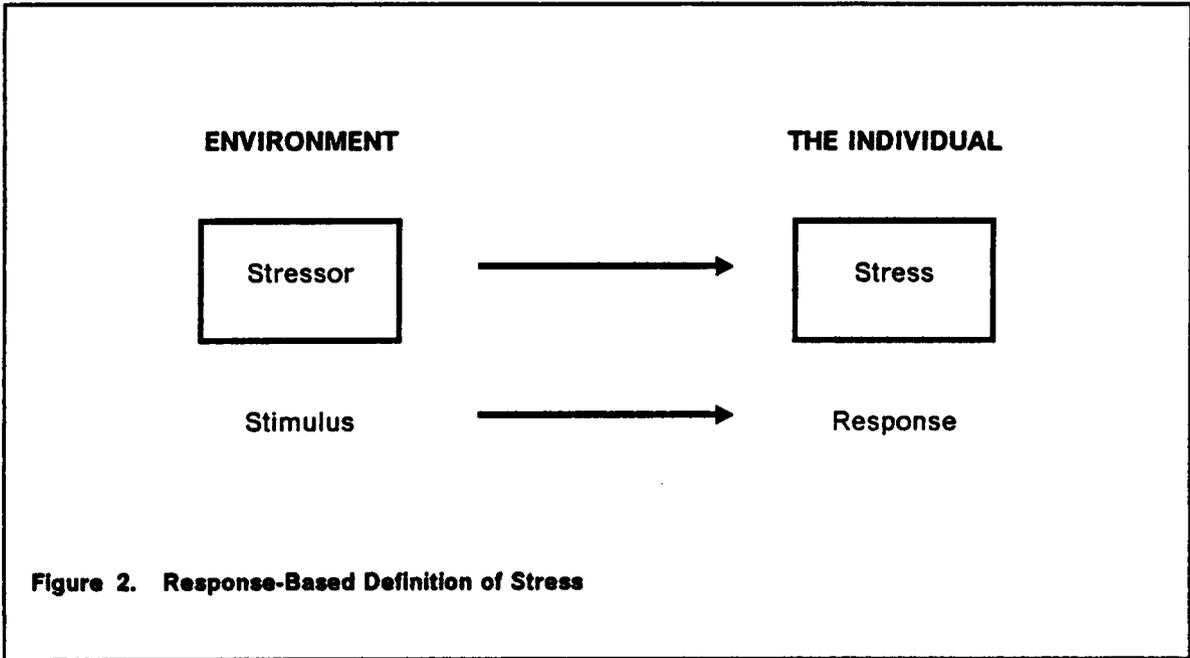
A researcher adopting a response-based definition of stress is concerned with the response of the individual to potential stressors in the environment. The presence of a stress response indicates that the individual has encountered a disturbing or dysfunctional environment. This approach, which is represented by Figure 2, views stress as the dependent variable – an internal response to an environmental stressor.

The beginnings of this view of stress can be traced to the research of Dr. Hans Selye, who defined stress as the “nonspecific response of the body to any demand made upon it.”¹¹ As an endocrinologist, his main focus was on the physiological changes in the body brought about in response to the demands of the environment.

He theorized that when an individual is presented with a threat, the body responds by bringing about hundreds of physical changes which prepare the individual either to fight the threat or to flee from it. Selye posited that our bodies produce the same action-oriented stress response regardless of the nature of the

¹⁰ Ivancevich, John M. and Matteson, Michael T., *Stress and Work, A Managerial Perspective*, Scott, Foresman and Company, Illinois, 1980.

¹¹ Selye, Hans, *The Stress of Life*, McGraw-Hill, New York, 1956.



perceived threat. For our ancestors, this response was appropriate since the main concerns of cave dwellers were finding food and protecting themselves from wild animals. If a caveman was threatened by a wild animal, the stress response prepared him either to stay and fight the animal or run away. Once the caveman's physical challenge was over, the body would return to a normal, non-stressed state.

The problem is that, although the human nervous system still responds in the same way to stressors, the situations we find ourselves in today are much different. Therefore, the body's fight-or-flight response is inappropriate. The body, in getting ready to fight, gets prepared for something it cannot do. It then takes a long time for our bodies to return to normal. Selye believed the more often you put your body into this fight-or-flight mode, the more likely you are to end up with stress-related illnesses, or so-called diseases of adaptation.

Selye's notion of the nonspecificity of the stress response, which was influential for many years, has been criticized recently¹² as being oversimplified. His approach has also been considered narrow because of his exclusive concentration on the body's physiological response to stressor agents, while ignoring the role of psychological factors in the mediation of physical disease. Others, however, have expanded his view of stress to include the role of psychological factors in the stress response.¹³

Researchers adopting a response-based definition of stress have also studied the relationship between stress and performance. This line of research, which investigates the effect on performance of external factors such as noise and lighting, has failed to find a consistent relationship between particular stressors and

¹² *Op. cit.*, Cox, p. 6.

¹³ Kagan A. and Levi, L. Adaptations of the Psychosocial Environment to Man's Ability and Needs. In *Society, Stress and Disease*, Vol. 1, edited by L. Levi, Oxford University Press, London, 1971.

performance, and instead has found the associations to be complex. Noise, for example,¹⁴ has been found to first enhance and then later impair performance based on the length of exposure. In addition, the effect on performance varies depending on the type of task being performed. Also it has been found that the effects elicited on one occasion with a particular subject are not necessarily repeated on a different occasion with the same or a different subject.

Several weaknesses associated with response-based definitions have also been noted by McGrath.¹⁵ In particular, he noted that response-based definitions of stress fail to recognize individual differences in response to stressors, a criticism also voiced against the response based definitions of stress. Not everyone responds in a similar way to the same stressor. Therefore, knowledge of a particular environmental stressor does not allow us to predict the nature of the stress response or even whether a response will occur. Furthermore, the same stressor may over time elicit different responses from the same individual.

1.1.3 Interactional Definitions

Ivancevich and Matteson state that “stress is the consequence of the interaction between an environmental stimulus and the idiosyncratic response of the individual.”¹⁶ This interactional approach emphasizes that stress is an individual phenomenon; it develops from a unique relationship between the person and that person’s environment. Consequently, situations cannot be labelled as “stressful” or

¹⁴ Davies, D. R., *Physiological and Psychological Effects of Exposure to High Intensity Noise*, Applied Acoustics, Vol. 1, 218, 1968.

¹⁵ McGrath, J. E., *Social and Psychological Factors in Stress*, Holt, Rinehart and Winston, New York, 1970.

¹⁶ *Op. cit.*, Ivancevich and Matteson, p. 8.

“not stressful” – they may only be classified as potentially stressful for individuals. As Veninga and Spradley¹⁷ have remarked, “each person learns to see the world through ‘stress-colored glasses’ but the character of the lens differs for each of us so that an event that brings intense, unrelieved stress for one individual may affect another in only minor ways.”

Figure 3 shows stress as an interaction between environmental factors and responses resulting from these factors. This interaction is moderated by individual differences. There are individual variations not only in the experience of stress, but also in the response to stress. These variations result from perceptual differences among individuals as well as differences due to physical characteristics, such as age and sex.

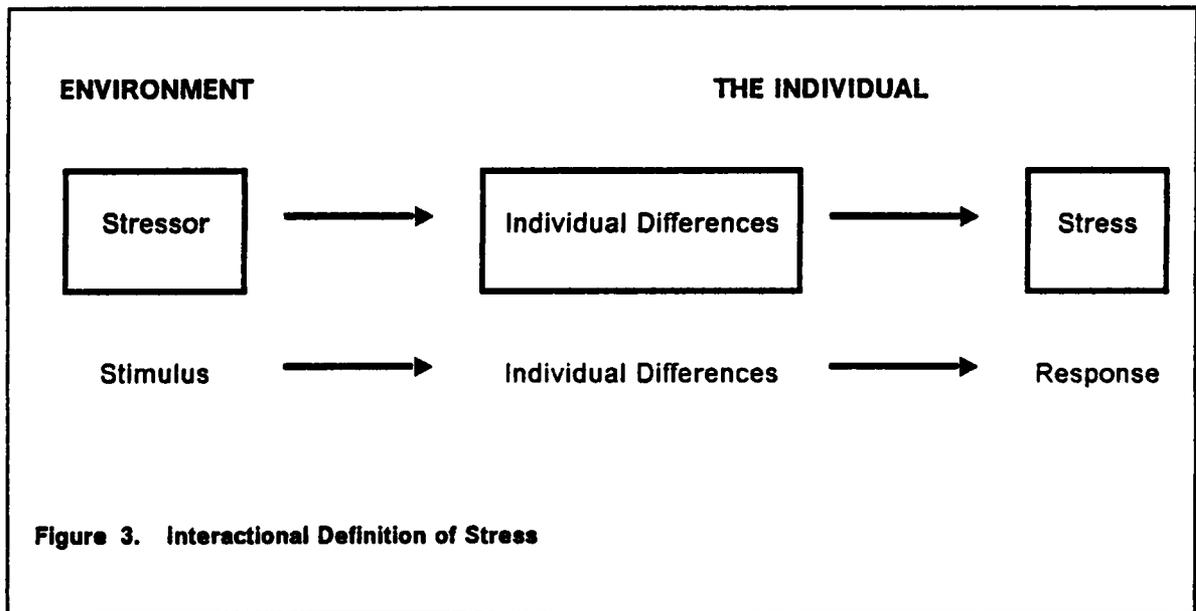
The interactional model is more comprehensive than the first two. Its major advantage over the first two definitions discussed is its recognition of the critical role of individual differences.

1.1.4 A Working Definition

This study uses a definition of stress developed by Ivancevich and Matteson.¹⁸ Stress is viewed as “an adaptive response, mediated by individual characteristics and/or psychological processes, that is a consequence of any external action,

¹⁷ Veninga, Robert L. and James P. Spradley, *The Work/Stress Connection: How to Cope with Job Burnout*, Little, Brown and Company, Boston, MA, 1981.

¹⁸ *Op. cit.*, Ivancevich and Matteson, p. 8.



situation or event that places special physical and/or psychological demands upon a person.”

Thus, stress is seen as the adaptive response of the individual to external events. These external events, or stimulus conditions, will be referred to throughout this study as stressors. Attention will be directed towards identifying specific environmental conditions which are potential stressors. Whether the particular individual experiences a stress response will depend on that individual’s unique characteristics and psychological processes.

1.2 CONSEQUENCES OF STRESS

In considering stress consequences, it is important to remember that stress is not necessarily bad for us. Some stress, called eustress, is good and produces positive outcomes.¹⁹ For example, stress can serve as a motivator. There are, however, negative or dysfunctional consequences of stress. Cox²⁰ has developed a taxonomy of stress consequences that includes the following:

1. **Subjective effects:** anxiety, apathy, depression, fatigue, irritability, nervousness.
2. **Behavioral effects:** drug use, excessive eating or loss of appetite, excessive drinking and smoking, impulsive behavior, restlessness.

¹⁹ *Op. Cit.*, Ivancevich and Matteson, 1980.

²⁰ *Op. cit.*, Cox, p. 92.

3. Cognitive effects: inability to make decisions and concentrate, frequent forgetfulness, hypersensitivity to criticism, mental blocks.
4. Physiological effects: increased blood glucose levels, increased heart rate and blood pressure, difficulty in breathing, numbness and tingling in parts of the limbs.
5. Health effects: asthma, chest and back pains, coronary heart disease, headaches and migraines, ulcers.
6. Organizational effects: absenteeism, poor productivity, high accident and labor turnover rates, antagonism at work, job dissatisfaction.

It cannot be concluded that these consequences are always, or even frequently, the result of stress. Certainly, consequences such as poor productivity, job dissatisfaction, turnover, inability to concentrate and elevated blood pressure can be the result of many factors. However, the likelihood that stress may be the primary or contributing cause of these consequences cannot be disregarded.²¹

1.3 STRESS AND WORK

For most employed individuals, work is an extremely important part of daily life. An individual holding a forty-hour-a-week job, after adding in time needed for lunch during work, travel, and preparation for work, spends 10 to 12 hours a day on work-related activities. For professionals, who tend to stay late at work, bring work

²¹ *Op. cit.*, Ivancevich and Matteson, p. 14.

home, and return to the office on weekends, the time spent on work-related activities may run between 60 and 90 hours a week. Thus work-related activities may take about 70% of nonsleep time, including weekends.²²

In addition to investing a considerable amount of time at their jobs, individuals identify with and derive personal satisfaction from their work. It thus becomes difficult to separate their work lives from their nonwork lives. Many are unable to compartmentalize the different aspects of their lives; work life spills over into nonwork life and vice versa. Thus any distinction between work life and personal life becomes conceptual and somewhat artificial.²³ Regardless of how successful one is at separating the different aspects of one's life, one's marriage and family relations can be significant stressors. In particular, the difficulty of simultaneously managing work roles and family roles introduces the potential for role stress.²⁴ Thus, when studying work-related stress, one should examine not only stressors at work, but also stressors outside of work.

Stressors at work are numerous and varied. Quick²⁵ has identified four major categories of work-related stressors. The first of these, task demands, relates to the nature of the work itself. The second source of stressors, role demands, is associated with the organizational role assumed by the individual. The third major category, physical demands, is concerned with elements in the physical environment. The fourth category, interpersonal demands, refers to stressors occurring due to individuals working together and interacting on a regular basis.

²² *Op. cit.*, Ivancevich and Matteson, p. 17.

²³ Quick, James C. and Jonathan D. Quick, *Organizational Stress and Preventive Management*, McGraw-Hill Book Company, New York, 1984, p. 41.

²⁴ Hall, Douglas T. and Francine S. Hall, "Stress and the Two-Career Couple," in *Current Concerns in Occupational Stress*, edited by C. L. Cooper and R. Payne, John Wiley & Sons, Ltd., Chichester, England, 1980, p. 243.

²⁵ *Op. cit.*, Quick, p. 18.

Another categorization of work stressors is provided by Ivancevich and Matteson.²⁶ In their research they have identified fifteen work-related dimensions which they divide into two main groups of stressors. One group, which they call macro stressors, refers to stressors operating at the organizational level. This group includes factors unique to the organization, such as organizational structure, human resource development, and the reward system. The other group, labelled micro stressors, includes stressors operating at the individual level. These stressors are associated with the tasks to be accomplished or the role played by an individual in the organization. Quantitative work overload and role conflict are examples of stressors in this group.

1.4 APPROACHES TO STRESS MANAGEMENT

Ideally, a job should be free from physical harm. It should not endanger one's health or life. It should leave one with enough time to rest and enjoy life. When an organizational climate does not provide this minimum requirement, the organization should work to try to improve the situation, for two reasons. The first is humanitarian – it should take responsibility for employee health. The second relates to cost.²⁷

²⁶ Ivancevich, John M. and Michael J. Matteson, *Stress Diagnostic Survey (SDS), Comments and Psychometric Properties of a Multidimensional Self-Report Inventory*, University of Houston, Houston, Texas, 1987, p. 1.

²⁷ *Op. cit.*, Ivancevich and Matteson, p. 7.

Although it is impossible to accurately measure the cost of stress to organizations, it is estimated that these costs are substantial.²⁸ In tallying these costs, one must consider both direct and indirect costs. There are direct costs associated with turnover, absenteeism and poor performance on the job.²⁹ Indirect costs include job dissatisfaction, communication breakdowns, faulty decision making and deterioration in the quality of work relations.³⁰

Organizations alone, however, cannot be responsible for reducing the negative effects of stress. Since stress results from the combination of the person and the environment, any solution to stress must involve both the individual and the organization. The following approaches to stress management suggested by Landy³¹ include both personal and organizational strategies for stress reduction.

1. **Behavioral intervention:** This technique assumes that people can be taught to alter their behavior. For example, through the use of a behavioral modification technique, an individual with a Type A personality (competitive, impatient, hostile) could be taught to act more like a Type B person (less harried, less competitive), thereby reducing the risks associated with stress.
2. **Physiological intervention:** This technique attempts to reduce the secondary effects of stress. Through the use of relaxation techniques and/or biofeedback, the individual is taught to control certain nervous system response levels (e.g.,

²⁸ Greenwood, J. W., III and J. W. Greenwood, Jr. *Managing Executive Stress*, Wiley, New York, 1979.

²⁹ Macy, Barry A. and Philip H. Mirvis, "A Methodology for Assessment of Quality of Work Life and Organizational Effectiveness in Behavioral-Economic Terms," *Administrative Science Quarterly*, June 1976, Vol. 21, p. 217.

³⁰ *Op. cit.*, Quick and Quick, p. 89.

³¹ Landy, Frank L., *Psychology of Work Behavior*, The Dorsey Press, Homewood, Illinois, 1985), p. 554.

heart rate, blood pressure, muscle tension) in an effort to induce a state of relaxation and restore bodily functions to a nonstressed state.

3. **Job Design and Redesign:** This approach implies that certain characteristics of the work environment or task arrangement are contributing to stress. By changing these characteristics, the level of stress can be reduced. An example of this type of managerial intervention would be reduction of overload conditions through a system of work reassignment.
4. **Cognitive Intervention:** The role of perception in stress is crucial. Whether a given event is a stressor is not so much related to the nature of the event as it is to the way we choose to interpret it. It follows then that there is a potential for reducing stress by changing an individual's perception of the environment. Through stress management seminars³² individuals can be taught to replace negative, self-defeating cognitions (e.g., "The work is too difficult for me; I do not have the necessary skills to accomplish this task.") with more positive, reinforcing cognitions (e.g., "I can get this done if I take it one step at a time").

1.5 STATEMENT OF THE PROBLEM AND OBJECTIVES

The above suggests the following: (a) work environments are potentially stressful, (b) stress has negative consequences for both the individual and the organization, (c) individuals and organizations can and should exert efforts to reduce

³² Meichenbaum, D., *Cognitive Behavior Modification: An Integrative Approach*, Plenum, New York, 1977.

stress and (d) reducing stress will increase organizational productivity and improve the employees' quality of life.

In spite of the fact that public accounting is perceived to be extremely stressful, little is known about the stressors that public accountants face.³³ The limited research that has been done in this area has not been of a comprehensive nature--the only stressors considered were those intrinsic to the organization; factors extrinsic to the organization have not been incorporated in the stress models. Furthermore, few studies have examined the possible moderating effects of personal characteristics such as personality type, gender, and family type. Gender and family type warrant special investigation because of the recent influx of women into the accounting profession along with an increase in the number of male accountants in dual-career families. Finally, past studies generally examined only one particular organizational outcome of stress, such as turnover. A more comprehensive investigation of the stress issue should assess the relationship between stressors and several outcomes (job-related tension, job dissatisfaction, propensity to leave the organization, and turnover).

An important first step in reducing stress in public accounting is to gain a better understanding of stressors encountered and the consequences of those stressors, as well as any possible moderating effects of personal characteristics. Since much research indicates that an individual in a middle-management position³⁴ occupies the most stressful position in public accounting,³⁵ particular attention should be paid to

³³ Kelley, Tim and Robert E. Seiler, "Auditor Stress and Time Budgets," *The CPA Journal*, December 1982, p. 24.

³⁴ A person in a middle-management position is one who reports to partners and supervises junior staff members.

³⁵ Gaertner, James F. and John A. Ruhe, "Job-Related Stress in Public Accounting," *Journal of Accountancy*, June 1981, p. 70.

individuals at this level. This study of stress in public accounting was conducted to address the following research questions:

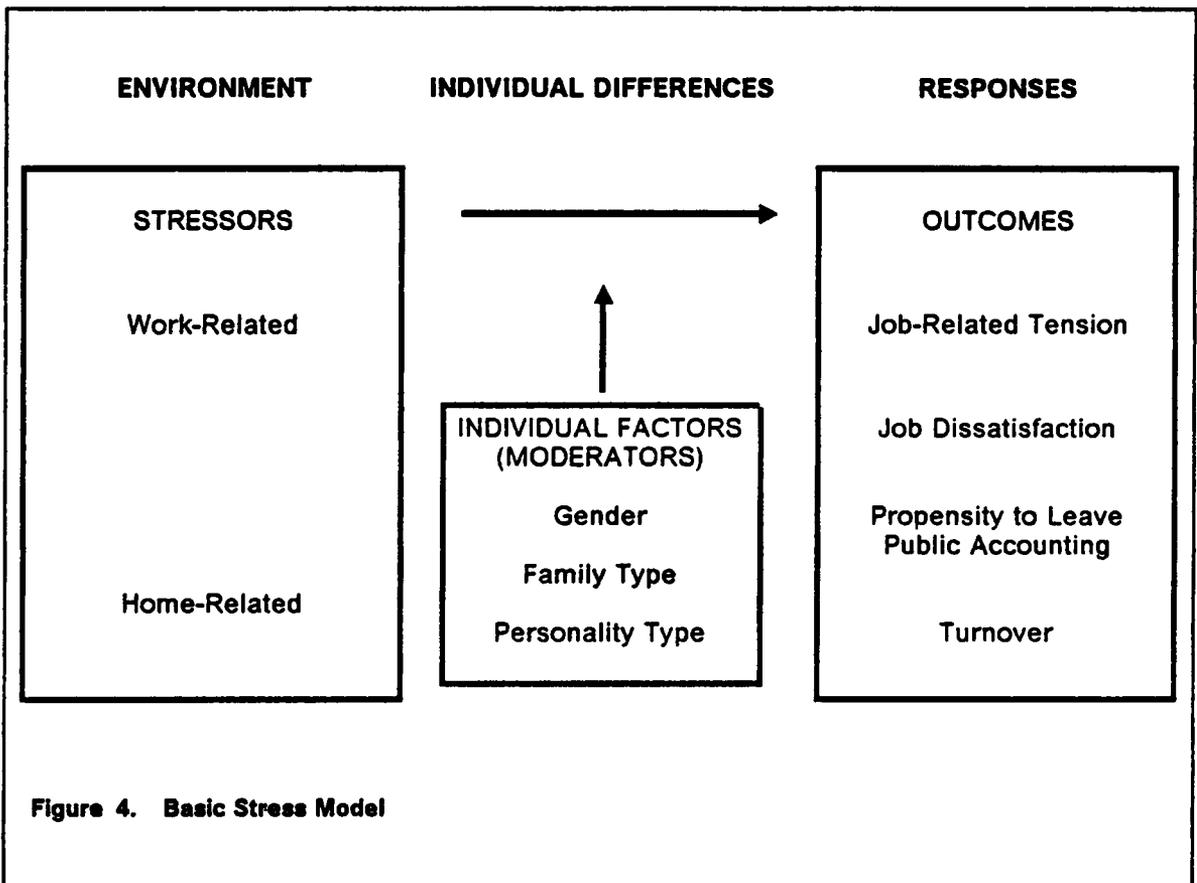
- What environmental factors (both work-related and home-related) contribute to stress at the middle-management level in public accounting?
- What are the consequences of this stress?
- Are the consequences of stress modified by the personal characteristics of the individual?

An outline of the model used in addressing these research questions is presented in Figure 4. This model will be expanded in Chapter 3.

The model's components include (1) potential stressors (both work-related and home-related), (2) individual factors or moderators, and (3) outcomes. The model indicates that the relationships between the stressors and the stress outcomes are influenced by a number of individual factors or moderators.

1.6 RESEARCH METHODS AND PROCEDURES

To assure representativeness, data for the study were collected through questionnaires mailed to a national sample of certified public accountants. The random sample was drawn from a stratified membership list of the American Institute of Certified Public Accountants (AICPA). This stratified population consists of all individuals who joined the Institute in 1985. This stratification was done to assure high representation in the sample of individuals presently in middle-level public accounting positions or those who have recently left these positions. The sample



consists of two groups. Group 1 (the non-turnover group) consists of 1,593 individuals presently employed in public accounting positions. Group 2 (the turnover group) consists of 340 individuals who were employed in public accounting firms but have recently switched to non-public accounting jobs. Of the 1,933 individuals sampled, approximately 1,200 (62%) responded.

The variables of interest in the study were measured by instruments that have been shown to be reliable and valid in prior studies. A pilot study was conducted to judge the content validity of the variables being studied and to assess the applicability of the instruments to the middle-level public accounting position. Different questionnaires were mailed to the non-turnover and the turnover groups. Results of the responses to the questionnaires will be presented in Chapter 4.

1.7 ORGANIZATION OF THE STUDY

This dissertation is divided into five chapters. Chapter 2 contains a review of research on stress outside the area of accounting, specifically from the psychology and organizational behavior literature, and presents a summary of these research findings. Chapter 2 also includes a discussion and summarization of the research on stress in accounting. Chapter 3 contains an expanded model used to guide the research, and states the specific hypotheses tested. Chapter 3 also includes a description of the research methods and procedures used in the study, including development of the research instruments, sample selection, implementation of the survey, and statistical methods employed. Chapter 4 presents the results of the

statistical analyses. Chapter 5 includes an analysis of the results and a discussion of their implications. Chapter 5 also contains a comparison of the findings from this study with findings from past non-accounting and accounting studies, a discussion of the limitations of the study, and suggestions for future research.

Chapter 2

LITERATURE REVIEW

This study is based on the following suppositions: (a) there are various sources of stress, including work-related and home-related sources, (b) there are various possible outcomes or consequences of stress, and (c) all individuals are not affected by the same stressors in the same way.

To examine these areas of concern, the study will follow a multidimensional approach. The literature review that follows will summarize relevant research on these topics: (1) work-related sources of stress, (2) home-related sources of stress, (3) organizational outcomes of stress, such as job-related tension, job dissatisfaction, intention to leave, and turnover, and (4) personal characteristics of the individual believed to have a moderating effect on stress (specifically, level in the organization, gender, family type, and personality type).

Relevant non-accounting research on stress will be examined first to obtain an overview of the stress issues currently being addressed in the behavioral science literature. Then, research on stress in the area of accounting will be presented.

2.1 RESEARCH ON STRESS OUTSIDE OF ACCOUNTING

The issue of stress has been addressed quite extensively in the psychology and organizational behavior literature. This section discusses significant research results having particular application to the study of stress in an organizational setting.

2.1.1 Work-Related Stressors

Ivancevich and Matteson have conducted numerous studies of organizational stress, involving over 3,400 employees from a variety of occupational groups. Through this research they have compiled a representative set of work-related stressors³⁸ consisting of the following: role ambiguity, role conflict, quantitative and qualitative overload, career progress, responsibility for people, time pressures, and job scope. Each of these stressors is explained below.

- **Role Ambiguity** – Role ambiguity comes about when an individual is uncertain about what the job is, does not have a clear understanding of the objectives of the job, or is unsure about the scope of responsibility. Some role ambiguity is only temporary, for example the role ambiguity resulting from job transfers, personnel changes, and other changes within the organization. However, role ambiguity can also exist for long periods of time and might never be resolved.
- **Role Conflict** – Role conflict occurs when a person is in a position where complying with one set of demands makes compliance with other demands more

³⁸ *Op. cit.*, Ivancevich and Matteson, *Stress Diagnostic Survey*.

difficult or impossible. Role conflict can occur because an individual is receiving conflicting requests from two or more people, or because the demands of the job conflict with an individual's desires or values.

- **Work Overload** – There are two types of work overload. Quantitative work overload results from having too much work to do in the time available. Qualitative work overload results when an employee either is not or feels unqualified to do the job, regardless of the amount of time available.
- **Career Progress** – These stressors relate to an individual's perceptions of career opportunities within an organization. Pressures can result when an individual feels insecure in a position or feels that the organization does not offer good promotion opportunities. In addition, stress can result when an individual feels that accomplishments thus far do not match career aspirations.
- **Responsibility for People** – Individuals in organizations have two different types of responsibility: responsibility for things, such as equipment and budgets, and responsibility for people. Research findings indicate that responsibility for people is more stressful than responsibility for things.
- **Times Pressures** – Deadlines that are overly tight will result in time pressures, particularly when the ability to meet time demands is an important factor in an individual's performance evaluation.
- **Job Scope** – Job scope stressors relate to the general range and depth of the job. They are present when an individual perceives the job as unimportant or lacking variety. They also occur when an individual holding a demanding position receives little feedback or has limited latitude in decision making.

2.1.2 Home-Related Stressors

Because of the potential interaction of work life and home life,³⁷ it is important to investigate sources of stress outside the work environment. A major problem facing individuals in the work force is conflict among work, leisure, and family roles.³⁸ For single individuals, the conflict may be between work and leisure activities. Conflicts result when the work schedule severely limits free time or makes the individual too tired or irritated to enjoy leisure activities.³⁹

For spouses and/or parents, the conflict may be not only between work and leisure time, but between work and family roles.⁴⁰ This conflict can be best understood by reference to role theory, which defines a role as a set of specific behaviors expected of an individual occupying a particular social position. Conflict results when the role expectations of different roles are incompatible. Thus, an individual encounters work/family conflict when he or she perceives that meeting family role expectations is incompatible with meeting the role demands of his or her job, and vice versa.⁴¹ Most conflicts between roles result from competition for time, a scarce resource. For example, a woman's dependants may not be disturbed that she works per se, but resent the fact that she works during times when they would

³⁷ Mortimer, Jeylan T. and Glorian Sorensen, "Men, Women, Work, and Family," in *Women in the Workplace: Effects on Families*, edited by Kathryn M. Borman, Daisy Quarm and Sarah Gideonse, Ablex Publishing Corporation, Norwood, N.J., 1984., p. 139.

³⁸ Pleck, Joseph H., Graham L. Staines, and Linda Lang, "Conflicts Between Work and Family Life," *Monthly Labor Review*, March 1980, p. 29.

³⁹ Staines, Graham L. and Pamela O'Connor, "Conflicts Among Work, Leisure, and Family Roles," *Monthly Labor Review*, August 1980, pp. 35.

⁴⁰ Hall, Douglas T., "A Model of Coping With Role Conflict: The Role Behavior of College Educated Women," *Administrative Science Quarterly*, Vol. 17, (4), December 1972, p. 473.

⁴¹ Frone, Michael R. and Robert W. Rice, "Work-Family Conflict: The Effect of Job and Family Involvement," *Journal of Occupational Behaviour*, Vol. 8, 1987, p. 46.

like her to be with them. They then make demands on her, like calling her at the office, which conflict with her work role.

2.1.3 Stress Outcomes

Most of the early stress research concentrated on the link between stress and physiological symptoms.⁴² Recent studies on stress in the areas of organizational behavior and industrial psychology have investigated the association between stress and other consequences such as job dissatisfaction and turnover.

Kahn and his associates⁴³ report that role ambiguity and role conflict lead to increased stress and increased job dissatisfaction. Others addressing the issue of stress and job dissatisfaction have found a positive association between job dissatisfaction and the following stressors: job complexity, responsibility for people, work overload, overtime, under-utilization,⁴⁴ and career development.⁴⁵

The impact of stress on turnover has been researched either by studying turnover directly or by studying the process the individual goes through in arriving at the decision to leave a particular job. Mobley, Horner and Hollingsworth⁴⁶ view the turnover process as a series of stages an individual goes through in reaching a decision to quit. These stages are job dissatisfaction, thinking of quitting, intention

⁴² Schuler, Randall S., "Definition and Conceptualization of Stress in Organizations," *Organizational Behavior & Human Performance*, Vol. 24, 1980, p. 200.

⁴³ *Op. cit.*, Kahn, Wolfe, Quinn, Snoek, pp. 85 and 253.

⁴⁴ French, John R. P., Jr., Robert D. Caplan, and R. Van Harrison, *The Mechanisms of Job Stress and Strain*, John Wiley & Sons, 1982, p. 41.

⁴⁵ Erikson, J., W. M. Pugh, and E. K. Gunderson, "Status Incongruity as a Predictor of Job Satisfaction and Life Stress," *Journal of Applied Psychology*, 56, 1972, p. 525.

⁴⁶ Mobley, William H., Stanley O. Horner, and A. T. Hollingsworth, "An Evaluation of Precursors of Hospital Employee Turnover," *Journal of Applied Psychology*, No. 63, 1978, p. 409.

to quit/stay and quitting/staying. Other variables, such as age, tenure, and the probability of finding an acceptable alternative position, influence the individual's progression through these stages.

Researchers studying turnover directly have found a positive relationship between stress (as measured by role conflict and role ambiguity) and turnover.⁴⁷ Using a turnover process approach, McKenna, Oritt and Wolff⁴⁸ found a positive association between occupational stress and both intention to leave and actual turnover.

2.1.4 Individual Factors (Moderators)

Research on the relationship of individual characteristics to stress suggests that individual differences moderate the relationship between stressors and various outcomes.⁴⁹ As the name denotes, a moderator changes the nature of the relationship between two variables, either intensifying or weakening it. The potential moderating effect of organizational level, gender, family type, and personality type has been investigated. Each of these potential moderators will be discussed below.

1. Organizational Level

The level of the individual in the organization appears to impact on the amount of stress experienced. Recent research indicates that the greatest

⁴⁷ Van Sell, M., A. P. Brief, and R. S. Schuler, "Role Conflict and Role Ambiguity: Integration of the Literature and Directions for Future Research," *Human Relations*, January 1981, pp. 43-71.

⁴⁸ McKenna, Jack F., Paul L. Oritt, and Howard K. Wolff, "Occupational Stress as a Predictor in the Turnover Decision," *Journal of Human Stress*, December 1981, p. 15.

⁴⁹ *Op. cit.*, Ivancevich and Matteson, p. 167.

amount of stress in public accounting occurs at the middle-management level. In a study by Ivancevich and Matteson⁵⁰ of 339 business/industrial managers, individuals in middle-level positions reported a significantly greater amount of stress than managers at all other levels. In addition, middle-level managers were the least satisfied with their jobs.

Similar results were obtained by Marshall and Cooper⁵¹ in a study of British managers. The researchers examined the differences in job stress reported by lower-middle, middle, and top-level managers. The middle-level managers reported the highest job stress of all management levels in a number of job areas, including long working hours and responsibility for people. Role conflict and ambiguity have also been found to be highest at the middle-management level.⁵²

2. Gender

The last twenty years have brought about major changes in the education level and employment of American women. There are now more females than males in U.S. colleges and universities,⁵³ and women earn one out of three MBA degrees.⁵⁴ They have entered the employment market in ever-increasing numbers and now comprise 44% of the total workforce.⁵⁵ Fully 70% of all

⁵⁰ Ivancevich, John M., Michael T. Matteson, and Cynthia Preston, "Occupational Stress, Type A Behavior, and Physical Well Being," *Academy of Management Journal*, Vol. 25, No. 2, 1982, pp. 373-391.

⁵¹ Marshall, Jude and Cary L. Cooper, *Work, Stress, and the Executive*, Macmillan, London, 1978.

⁵² Kahn, Robert L., Donald M. Wolfe, Robert P. Quinn, J. Diedrick Snoek, *Organizational Stress: Studies in Role Conflict and Ambiguity*, Wiley, New York, 1964, p. 147.

⁵³ Cooper, Cary L. and Marilyn J. Davidson, *Women in Management*, Heinemann, London, 1984, p. 164.

⁵⁴ Stengel, Richard, "Balancing Act," *Time*, April 6, 1987, p. 20.

⁵⁵ *Op. cit.*, Cooper and Davidson, p. 164.

American women between the ages of 25 and 54 are employed or actively seeking employment.⁵⁶

Research reports that female managers experience a higher level of work-related stress than their male colleagues.⁵⁷ Female managers are subjected to many of the same organizational stressors as males. Additionally, women are subjected to certain unique problems and pressures.

Women managers are often subjected to overload due to a feeling that they must work harder than their male colleagues to prove themselves.⁵⁸ Another factor contributing to high levels of work overload for women managers is an inability to properly delegate work.⁵⁹

Women employed in managerial positions are often considered "tokens" or symbols of their group.⁶⁰ They may be among the first females to hold their positions, and are generally surrounded by male colleagues. These women may have difficulty functioning in an organization because they lack sufficient role models.⁶¹ They feel as if they operate in a "fishbowl"; their minority status making them more conspicuous and subject to excessive scrutiny. This increased visibility and the resulting loss of privacy leads to stress and a feeling of

⁵⁶ Taylor, Alex III, "Why Women Managers Are Bailing Out," *Fortune*, August 18, 1986, p. 16.

⁵⁷ Davidson, Marilyn J. and Cary L. Cooper, "The Extra Pressures on Women Executives," *Personnel Management*, June 1980, p. 50.

⁵⁸ See, for example, *Op. cit.*, Forbes, 1979; Harlan, Anne and Carol Weiss, *Moving Up: Women in Managerial Careers: Final Report*, Wellesley College Center for Research on Women, Wellesley, MA, 1981; and Davidson, Marilyn and Cary Cooper, *Stress and the Woman Manager*, Martin Robertson & Company Ltd., Oxford, 1983, p. 16.

⁵⁹ *Op. cit.*, Davidson and Cooper, 1983, p. 65.

⁶⁰ *Op. cit.*, Forbes, 1979.

⁶¹ See, for example, Hennig, Margaret and Anne Jardim, *The Managerial Women*, Pan Books, London, 1979; and *Op. cit.*, Davidson and Coepr, 1983, p. 24.

isolation.⁶² Finally, women may experience greater stress due to actual or perceived discrimination.⁶³

Work-related tensions experienced by women in management positions are compounded by the fact that these women often combine work with taking care of a home or raising a family and thus have less time to relax.⁶⁴ This excessive pressure and scarcity of free time can adversely affect stress-coping abilities, leaving these women especially vulnerable to some of the negative consequences of stress.⁶⁵

3. Family Type

Family structures have changed in the last thirty years. In the "traditional family" of the 1950's, role behaviors were fairly well defined by gender. The male provided economic support for the family. The female managed the household, performed all domestic chores, cared for the children, and provided emotional support for her husband.⁶⁶

Economic necessity and the feminist movement have encouraged women to seek employment. However, as more women have entered the labor market, and have less time for domestic duties, strains have been placed on traditional role

⁶² *Op. cit.*, Davidson and Cooper, 1983, pg. 24.

⁶³ See, for example, *Op. cit.*, Taylor, 1986; Thackray, John, "The Feminist Manager," *Management Today*, April 1979, pp. 90-92+; Bartol, Kathryn, "Female Managers and Quality of Working Life: The Impact of Sex-Role Stereotypes," *Journal of Occupational Behaviour*, Vol. 1, 1980, p. 209; and *Op. cit.*, Davidson and Cooper, 1983, p. 34.

⁶⁴ *Op. cit.*, Forbes, 1979.

⁶⁵ See, for example, Gray, Janet Dreyfus, "The Married Professional Woman: An Examination of Her Role Conflicts and Coping Strategies," *Psychology of Women Quarterly*, Vol. 7(3), Spring 1983, p. 236; *Op. cit.*, Mortimer and Sorensen, 1984, p. 152; and *Op. cit.*, Davidson and Cooper, 1983, p. 137.

⁶⁶ Green, Donna H. and Thomas J. Zenisek, "Dual Career Couples: Individual and Organizational Implications," *Journal of Business Ethics*, 2, 1983, p. 171.

definitions. Old values have been questioned and new lifestyles have emerged.⁶⁷

Many families have moved from the traditional family to the dual-career structure. When both partners pursue careers, there is no longer a full-time parent or spouse at home. This creates time pressures for both spouses that did not exist in the traditional family structure. These time pressures, and the resulting stress, are particularly acute among couples with children.⁶⁸

It is now acknowledged that there is no clear division between work life and family life; each impacts on the other.⁶⁹ "Organizations are beginning to recognize that an employee who is a partner in a dual-career couple is a different category of worker, and that old policies, that worked well with traditional families and single employees, bring about unexpected reactions from members of dual-career families."⁷⁰

4. Personality Type

Ivancevich and Matteson⁷¹ have investigated the link between personality type and stress. Their study, involving male business executives, defined personality types as follows:

- Type A individuals are characterized by competitiveness, a constant struggle against time, an achievement-orientation, and an intense sense of urgency.
- Type B individuals are described as being less aggressive, less competitive, not as rushed, more easygoing.

⁶⁷ *Op. cit.*, Mortimer and Sorensen, p. 148.

⁶⁸ *Op. cit.*, Gray, p. 236.

⁶⁹ *Op. cit.*, Mortimer and Sorensen, p. 139.

⁷⁰ *Op. cit.*, Green and Zenisek, p. 182.

⁷¹ *Op. cit.*, Ivancevich and Matteson, 1982.

The study found, as expected, that Type A individuals experienced higher degrees of stress than Type Bs. This was found to be true especially when looking at those stressors over which they had the least amount of control, such as work overload and role conflict.

Similar relationships have been found to be true for women as well. Kelly and Houston⁷² found in a recent study that Type A women experience higher levels of stress than Type B women. Additionally, the researchers found that Type A behavior was positively related to organizational level and that Type As report heavier work loads in their jobs than Type Bs. Type As tend to work more hours per week and report higher levels of role conflict and job tension.

These findings have been supported by other researchers. Davidson and Cooper,⁷³ for example, found that of their sample of 135 senior female executives, 61.5% were classified as Type A (21.5% as Type A1 and 40% as Type A2). Only 38.5% were classified as B3 and there were no B4 women. (The distribution of Type A and B behavior patterns in the general population tends to be: A1 - 10%; A2 - 40%; B3 - 40%, and B4 - 10%).⁷⁴ Thus, the sample of female executives had more than twice as many of the most extreme Type A individuals.

Although research indicates a prevalence of Type A individuals in management positions, this behavior pattern is not a requirement for success. In fact Type Bs have been found to be just as likely to possess high ambition and intelligence as Type As.

⁷² Kelly, Karen E. and B. Kent Houston, "Type A Behavior in Employed Women: Relation to Work, Marital, and Leisure Variables, Social Support, Stress, Tension, and Health," *Journal of Personality and Social Psychology*, Vol. 48, No. 4, 1985, pp. 1067-1079.

⁷³ Davidson, Marilyn and Cary Cooper, "The Extra Pressures on Women Executives," *Personnel Management*, June 1980, pp. 48-51.

⁷⁴ Rosenman, R. H., M. Friedman, and R. Straus, "A Predictive Study of Coronary Heart Disease," *Journal of the American Medical Association*, Vol. 189, 1964, pp. 103-110.

However, unlike the Type A individual, the drive in the Type B comes from security and confidence rather than irritation and annoyance.⁷⁵

2.1.5 Summary of Stress Research Outside of Accounting

Individuals in middle-management positions are more likely to be stressed than other individuals in an organization. This stress results from both work and non-work factors. Some of the organizational stressors are role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressure, and job scope.

Stress has negative consequences for both the individual and the organization. There is a positive relationship between stress and each of the following: job dissatisfaction, intention to leave, and turnover. The relationship between stress and its consequences is moderated by personal characteristics such as gender, family type, and personality type.

2.2 RESEARCH ON STRESS IN ACCOUNTING

In spite of the fact that the accounting profession is perceived to be extremely stressful, only a few studies have focused on the stressors that public accountants face.⁷⁶ This section contains a discussion of the results of recent studies in this area.

⁷⁵ *Op. cit.*, Davidson and Cooper, 1980.

⁷⁶ *Op. cit.*, Kelley and Seiler, pg. 24.

2.2.1 Work-Related Stressors

A study of organizational stressors in public accounting was conducted by Phillip T. Senatra.⁷⁷ This research focused on role conflict and role ambiguity as perceived by 88 audit seniors in several offices of a Big Eight accounting firm. Audit seniors were chosen for the study because within a CPA firm they may be viewed as holding a middle-management position: they report to managers or partners but also have responsibility for junior staff members. The results of the study indicated a positive correlation between role conflict and job-related tension and between role ambiguity and job dissatisfaction.

2.2.2 Home-Related Stressors

Several studies suggest that accountants experience conflict between work, leisure, and family roles. Earnest and Lampe⁷⁸ collected data from 1,000 male and female auditors with special emphasis on the likelihood of turnover. Respondents were asked to give reasons why they would consider leaving their present positions. Inadequate leisure time was ranked as the most important by females. Males ranked compensation as the most important with leisure time a close second.

In a comprehensive study conducted by Rhode, Sorensen, and Lawler⁷⁹ of professional turnover, each individual in the study who resigned from his or her first

⁷⁷ Senatra, Phillip T., "Role Conflict, Role Ambiguity, and Organizational Climate in a Public Accounting Firm," *The Accounting Review*, October 1980, pp. 594-603.

⁷⁸ Earnest, Kenneth R. and James C. Lampe, "Attitudinal Differences Between Male and Female Auditors: With Special Emphasis on Turnover Trends," *The Woman CPA*, July 1982, p. 16.

⁷⁹ Rhode, John Grant, James E. Sorensen, and Edward E. Lawler III, "Sources of Professional Staff

accounting position was asked to complete a questionnaire. The questionnaire contained 39 possible reasons for leaving the firm, and each individual was asked to rate each reason (on a scale from 1 to 5) according to its importance. The two reasons receiving the highest ratings (and the only ones receiving ratings above 3.0) were: "Feeling that your job tended to interfere with your family," and "Working more hours than you preferred."

Other studies of turnover have identified similar variables as important factors influencing turnover. White⁸⁰ and Knapp⁸¹ both found that overtime and family pressures influenced the decision to resign. Istvan and Wollman⁸² also identified pressures from home as a significant variable in an individual's decision to leave public accounting.

2.2.3 Stress Outcomes

A 1985 study by Bullen and Flamholtz⁸³ of non-partners in an accounting firm found that job pressures were significantly related to job dissatisfaction. The research also found a positive relationship between job dissatisfaction and intention to resign.

Turnover in Public Accounting Firms Revealed by the Exit Interview," *Accounting, Organizations, and Society*, Vol. 2, No. 2, 1977, p. 168.

⁸⁰ White, Gary E., "Attitudes of CPAs Related to Professional Turnover," *The Journal of Accountancy*, June 1973, p. 87.

⁸¹ Knapp, Chris, "Examining the Turnover Problem," *Journal of Accountancy*, November 1980, p. 88.

⁸² Istvan, Donald F. and Jack B. Wollman, "Turnover in CPA Firms," *The CPA Journal*, July 1976, p. 23.

⁸³ Bullen, Maria Lombardi and Eric G. Flamholtz, "A Theoretical and Empirical Investigation of Job Satisfaction and Intended Turnover in the Large CPA Firm," *Accounting, Organizations and Society*, Vol. 10, No. 3, 1985, p. 293.

The study by Senatra⁸⁴ focused on the audit senior's relationships with both superiors and subordinates. It was hypothesized that role conflict and role ambiguity would increase job-related tension and work dissatisfaction, and would increase the desire to leave the organization. Results of the study showed positive correlations between role conflict and job-related tension and between role ambiguity and job dissatisfaction. The expected relationship between these factors and the desire to leave the firm was not found to be statistically significant.

Studying turnover directly, rather than through intention to leave, White⁸⁵ found that reported stress was higher for those individuals in his sample who left public accounting than for those who remained.

2.2.4 Individual Factors (Moderators)

The accounting literature includes discussions of the following individual characteristics related to stress:

1. Organizational level

Gaertner and Ruhe⁸⁶ investigated the major sources of stress within CPA firms. Their study was designed to measure the differences in job-related stress among (1) types (national, local, regional) and sizes of firms, (2) various job-function areas (audit, tax, management advisory services), and (3) position levels (partner, manager, senior, junior).

⁸⁴ *Op. cit.*, Senatra, 1980.

⁸⁵ *Op. cit.*, White, 1973, pg. 87.

⁸⁶ *Op. cit.*, Gaertner and Ruhe, 1981.

The researchers found relatively minor differences in stress levels between firms of different types and sizes. Also, they found almost no differences in the overall level of stress between the various job function areas. They did, however, find significant differences in stress related to job level.

While partners experienced the highest level of responsibility for people, they were the least stressed. Managers reported somewhat similar stresses to those of partners with two exceptions: they felt significantly greater stress from role conflict and unwanted overtime. Seniors experienced significantly higher levels of role ambiguity and role conflict than did partners. They were particularly concerned about job future ambiguity and unwanted overtime. They also reported the greatest job dissatisfaction and the lowest self-esteem of all of the position levels identified. For the junior staff, stress related most to feelings of being under-utilized and unable to participate in the organization to the extent they felt they should. They also experienced significant role ambiguity.

Kelley and Seiler⁸⁷ studied the impact of time-budget pressures on auditors' behavior. The results of their study indicate that audit seniors perceive the heaviest time-budget pressures of all levels in the firm.

2. Gender

Women have been entering the public accounting profession in ever-increasing numbers. A survey by the AICPA showed that 46% of the accounting graduates and 40% of those entering public accounting in 1984 were women.⁸⁸ Women, however, have not been very successful in advancing in public accounting and few have made it to the partnership level. In 1983, women

⁸⁷ *Op. cit.*, Kelley and Seiler, 1982, pg. 35.

⁸⁸ Finan, Mary A., "The Woman CPA -- 1980 and Beyond," *The Woman CPA*, April 1985, p. 36.

represented only about one percent of the total U.S. partners in the Big Eight accounting firms.⁸⁹

In 1984 the Future Issues Committee of the American Institute of Certified Public Accountants selected fourteen issues of concern for immediate consideration by the profession. Included in this list was upward mobility of women in public accounting.⁹⁰ The Committee expressed concern that upward mobility in public accounting, especially admission to partnership, is more difficult for women than for men.

The turnover rate in public accounting is higher for women than for men.⁹¹ Earnest and Lampe⁹² report that the large differential in male and female turnover rates occurs after four to six years of employment. Results of their study indicate that attitudes of female and male auditors towards leaving the firm are similar in the early years of employment but become quite different as the individuals gain experience in the firm. When males and females with four years' experience were asked the probability of their leaving their firms, their responses were fairly similar—17% of the males and 14% of the females reported a high probability of leaving their firms. However, when the same question was asked of individuals with six years' experience, the females were more than twice as likely to indicate that they planned to leave than the males, with 17% of the males vs. 39% of the females indicating they would probably leave.

⁸⁹ Dahl, Shirley J and Karen L. Hooks, "Women Accountants, Today and Tomorrow," *The CPA Journal*, January 1985, p. 23. More up to date figures on the percentage of Big-Eight accounting firm partners who are female have not been found.

⁹⁰ American Institute of Certified Public Accountants, Future Issues Committee, Major Issues for the CPA Profession and the AICPA, October 1984, pg. 1.

⁹¹ Reid, Glenda E, Brenda T. Acken, and Elise G. Jancura, "An Historical Perspective on Women in Accounting," *Journal of Accountancy*, May, 1987, pg. 351.

⁹² *Op. cit.*, Earnest and Lampe, 1982, pg. 14.

When asked why they would leave their present positions, women ranked inadequate leisure time as the most important reason. They felt they were more likely to obtain adequate leisure time if they were to take a job outside of public accounting. Other studies have similarly found that women prefer more leisure time, or, stated differently, less overtime.⁹³ In any profession there is a tradeoff between time and energies spent in career and family life, and accounting is certainly no exception. However, society's pressure on women to be the center of family units, including the role of child raiser, means that female accountants often have a combined responsibility greater than that of male accountants.⁹⁴ It is the demands of fulfilling both professional and family responsibilities at the same time that result in female accountants desiring to work fewer hours.

One of the outcomes of combining career and family responsibilities may be higher levels of stress. Several studies have addressed the issue of differences in stress levels between male and female accountants. A study by Gaertner and Ruhe⁹⁵ concluded that women at staff levels in public accounting experience job-related stress that is similar to that experienced by males at the same job level. This result may be partially explained by the age group surveyed: staff-level accountants are usually recent college graduates, fairly young and with few family commitments.

Pearson, Wescott and Seiler⁹⁶ also studied job-related stress on male and female accountants during both peak and slack periods of the year. The

⁹³ See, for example, Stillabower, Linda, "An Evaluation of Career Issues for Women CPAs," *The Ohio CPA Journal*, Winter 1985, p. 24; and Pearson, Della A., Shari H. Wescott, and Robert E. Seiler, "A Comparative Study of Stress in Public Accounting," *The Woman CPA*, July 1985, p. 18.

⁹⁴ *Op. cit.*, Finan, Mary A., April 1985, p. 37.

⁹⁵ Gaertner, James F. and John A. Ruhe, "Occupational Stress in Men and Women Accountants: Is There a Difference?," *The National Public Accountant*, December 1983, p. 41.

⁹⁶ *Op. cit.*, Pearson, Wescott, and Seiler, July 1985, pp. 16-19.

researchers found little difference in job-related levels of stress for males and females, but did find a difference between male and female accountants' ability to release tension. They suggested that women may find it more difficult to leave work problems at work and to relax. They cautioned, as did Gaertner and Ruhe, that their findings may have been influenced by the fact that most of the women in their sample were fairly young, with one to four years' experience.

3. Personality Type

The study by Gaertner and Ruhe⁹⁷ found that Type A behavior characteristics significantly increased by job level, with partners reporting the highest Type A profile, managers falling just below partners, and seniors and juniors reporting significantly lower Type A profiles.

Recently Choo⁹⁸ conducted a two-part study investigating the determinants and consequences of stress in the auditing profession. Part I of the study looked at the association between job stress and Type A personality. Part II examined the relationship of stress to auditor's performance (as measured by both self-reported performance and supervisor ratings). Choo found that a significant positive relationship between job stress and Type A personality exists. In addition, stress was found to reduce performance, particularly for the Type A individual.

⁹⁷ *Op. cit.*, Gaertner and Ruhe, 1981, pg. 70.

⁹⁸ *Op. cit.*, Choo, 1986.

2.2.5 Summary of Research on Stress in Accounting

Seniors and managers are more likely to be stressed than other individuals in the accounting firm. This stress results from factors such as role ambiguity, role conflict, quantitative overload, career progress and time pressure.

Stress in the accounting profession has consequences similar to those identified in other occupations: job dissatisfaction, propensity to leave, and turnover. The relationship between stress and its consequences is moderated by personal characteristics such as gender and personality type.

Chapter 3

THE EMPIRICAL STUDY: RESEARCH METHODOLOGY

Past research on stress in accounting has suffered from the following limitations: (1) Only stressors intrinsic to the organization were considered, (2) few studies examined possible moderating effects of personal characteristics, and (3) researchers generally considered only one particular outcome of stress, such as turnover. To avoid these limitations, the present study is more comprehensive in scope than previous studies. Specific measures taken to improve upon past studies include the following: (1) Both work-related and home-related stressors are considered, (2) the moderating effects of several personal characteristics (gender, family type, and personality type) are examined, and (3) several outcomes of stress are investigated, namely job-related tension, job dissatisfaction, propensity to leave public accounting, and turnover.

3.1 RESEARCH QUESTIONS AND MODEL

Individuals in middle-level public accounting positions play a vital role in the accounting firm, and unplanned turnover is costly to the organization. It is therefore important to gain insight into the particular stressors impacting on individuals in these positions, the moderating effect of personal characteristics, and the extent of the negative effects of this stress. Consequently, this study addresses the following research questions:

- What environmental factors (both work-related and home-related) contribute to stress at the middle-management level in public accounting?
- What are the consequences of this stress?
- Are the consequences of stress modified by the personal characteristics of the individual?

The expanded stress model used in addressing these research questions is presented on the following page.

The model consists of the following parts: (1) potential stressors (both work-related and home-related) (2) individual factors or moderators, and (3) outcomes.

The work-related stressors shown in the model are role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressure, and job scope. These stressors relate to the task to be accomplished or the role played by an individual in the organization. Through extensive research, Ivancevich and Matteson⁹⁹ identified these particular stressors as having application to individuals in managerial positions. Home-related stressors will be assessed

⁹⁹ *Op. cit.*, Ivancevich and Matteson, 1987.

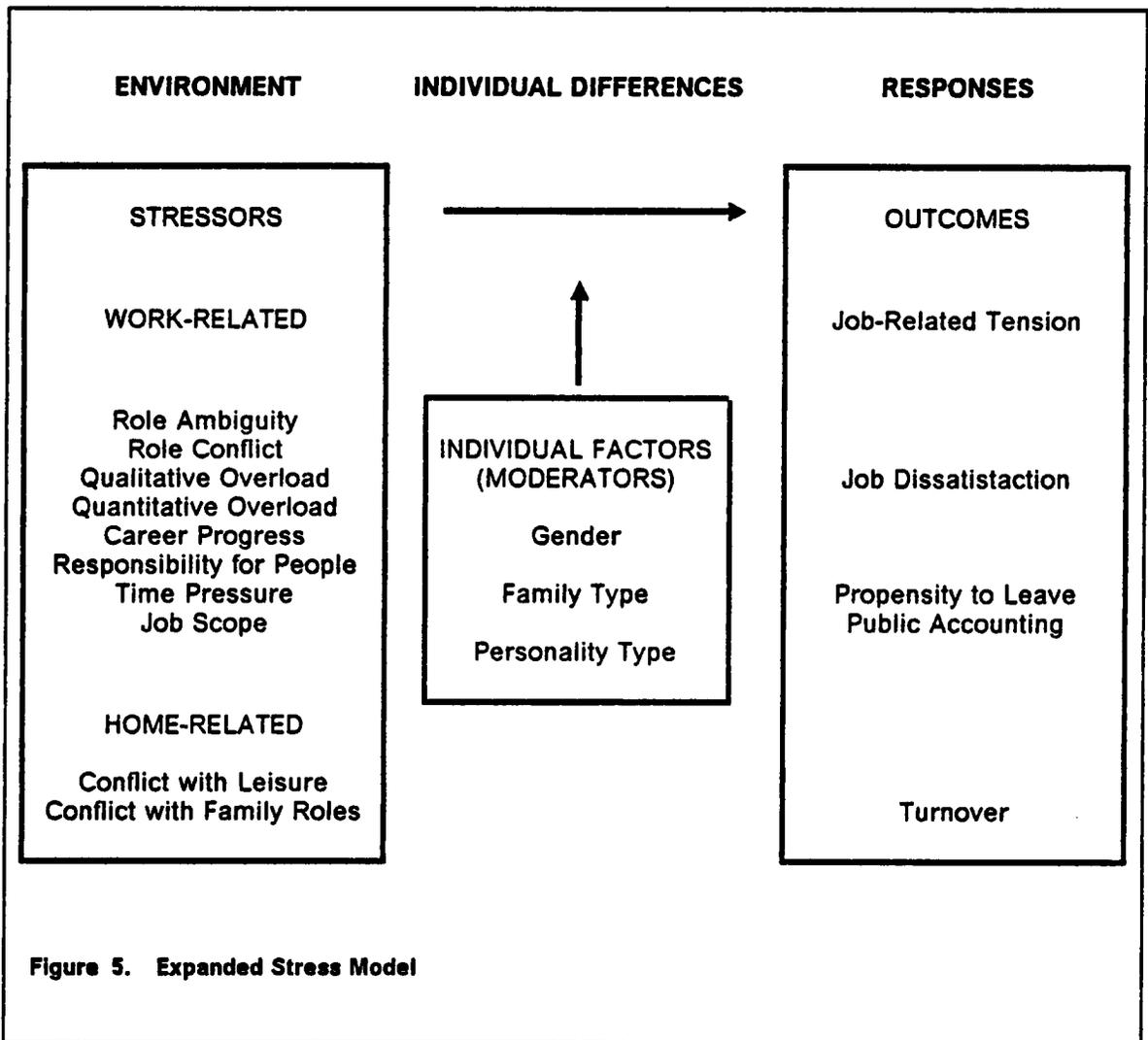


Figure 5. Expanded Stress Model

through the study of interrole conflict -- specifically conflict between work and leisure and conflict between work and family roles.

The outcomes to be investigated include job-related tension (specifically strain or ill health resulting from job requirements), job dissatisfaction, propensity to leave public accounting, and turnover. This multidimensional study of stress outcomes necessitates the use of two sample groups. One group consists of individuals presently holding public accounting positions. The other group consists of persons previously employed in public accounting positions who now hold jobs outside of public accounting.

The personal characteristics to be investigated as possible moderators include gender, family type, and personality type. Gender and family type were chosen as possible moderators due to the increasing number of females and members of dual career families working in public accounting firms. Personality type was selected for study because of the importance attributed to this individual characteristic as a moderator in past stress studies.

3.2 HYPOTHESES

To test the proposed relationships several hypotheses are suggested. Hypotheses 1 through 4 (stated in the null form) test the relationships between the work-related stressors (role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressure, and job scope), the home-related stressors (conflict with leisure and conflict with family roles), and

the various outcomes (job-related tension, job dissatisfaction, propensity to leave public accounting, and turnover).

H1: Each stressor is not related to job-related tension.

H2: Each stressor is not related to job dissatisfaction.

H3: Each stressor is not related to propensity to leave public accounting.

H4: Each stressor is not related to turnover.

Hypotheses 5 through 7 (stated in the null form) test the relationships between job-related tension and the various outcomes (job dissatisfaction, propensity to leave public accounting, and turnover).

H5: Job-related tension is not related to job dissatisfaction.

H6: Job-related tension is not related to propensity to leave public accounting.

H7: Job-related tension is not related to turnover.

Hypothesis 8 (stated in the null form) tests the relationship between job dissatisfaction and propensity to leave public accounting.

H8: Job dissatisfaction is not related to propensity to leave public accounting.

Hypotheses 9 through 11 (stated in the null form) test the effects of the moderators (gender, family type, and personality type) on the relationships hypothesized above.

H9: There are no significant differences between females and males in the hypothesized relationships (H1 through H8).

H10: There are no significant differences in the hypothesized relationships (H1 through H8) among the various family types.

- i. Single
- ii. Traditional family
- iii. Dual-career couple, no children
- iv. Dual-career couple, children
- v. Single, children

H11: There are no significant differences between Type-A individuals and Type-B individuals in the hypothesized relationships (H1 through H8).

The remaining sections of this chapter contain a description of the research methods and procedures used to test these hypotheses, including the method of data collection, development of the research instrument, sample selection, implementation of the survey, and statistical methods employed.

3.3 METHOD OF DATA COLLECTION

Data was collected for this study through a mail survey. Although this method of data collection may result in a bias in the data due to non-response, the method was selected because it possesses the following advantages:¹⁰⁰

1. Permits wide geographical coverage of the population, thus increasing validity through larger and more representative samples.
2. Permits more considered answers by letting each respondent complete the questionnaire at his or her own pace.
3. Gives respondents a sense of privacy, which is necessary because of the sensitive nature of the questions.

3.4 QUESTIONNAIRE DEVELOPMENT

The variables of interest in this study were measured through the use of instruments that have been shown to be reliable and valid in past studies. The measures of work-related stressors were adapted from the Stress Diagnostic Survey developed by Ivancevich and Matteson.¹⁰¹ Home-related stressors were measured using an interrole conflict scale developed by Kopelman, Greenhaus, and Connolly¹⁰²

¹⁰⁰ Miller, Delbert C., *Handbook of Research Design and Social Measurement*, Fourth Edition, Longman, New York, 1983.

¹⁰¹ *Op. cit.*, Ivancevich and Matteson, 1987.

¹⁰² Kopelman, Richard E., Jeffrey H. Greenhaus, and Thomas F. Connolly, "A Model of Work, Family, and

based on research by Pleck, Staines and Lang. Personality type was assessed through Matteson and Ivancevich's Behavior Activity Profile.¹⁰³

Job-related tension was measured by the anxiety-stress questionnaire developed by House and Rizzo¹⁰⁴ as used in the Senatra study.¹⁰⁵ The measure of job dissatisfaction was drawn from a questionnaire developed by Bullock¹⁰⁶ and used by Senatra.¹⁰⁷ Finally, propensity to leave public accounting was measured by an instrument designed by Cammann, Fishman, Jenkins and Klesh.¹⁰⁸ Each instrument is described in greater detail below.

3.4.1 Work-Related Stressors

The Stress Diagnostic Survey, developed by Ivancevich and Matteson,¹⁰⁹ is a comprehensive measure of organizational stress¹¹⁰ designed to identify specific areas of high stress at work. Over 3,400 individuals from a variety of occupational groups have completed various versions of the instrument. Although the instrument contains

Interrole Conflict: A Construct Validation Study," *Organizational Behavior and Human Performance*, Vol. 13, 1983.

¹⁰³ Matteson, Michael T. and John M. Ivancevich, University of Houston, Houston, Texas, 1982.

¹⁰⁴ House, R. J., and J. R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," *Organizational Behavior and Human Performance*, June, 1972.

¹⁰⁵ *Op. cit.*, Senatra, 1980.

¹⁰⁶ Bullock, R. P., *Job Satisfaction Scale*, Bureau of Business Research, The Ohio State University, 1965.

¹⁰⁷ *Op. cit.*, Senatra, 1980.

¹⁰⁸ Seashore, S. E., E. E. Lawler, P. H. Mirvis, and C. Cammann, editors, *Observing and Measuring Organizational Change: A Guide to Field Practice*, Wiley, N. Y., 1982.

¹⁰⁹ *Op. cit.*, Ivancevich and Matteson, 1987.

¹¹⁰ *Op. cit.*, Quick, 1984, pg. 114

items designed to measure stressors unique to the organization as well as to the individual, only items assessing individual stressors were used in this study.

The selected scale consists of thirty-two brief statements. The respondent was asked to indicate the extent to which each item was a source of stress. Responses could range from 1 (never a source of stress) to 7 (always a source of stress). The responses to the questions were totaled to obtain separate scores for eight categories of work stressors: role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressure, and job scope. An example of an item relating to role ambiguity is "The goals and objectives of my job are not clear." An item relating to time pressure is "The deadlines for completing work assignments are too unreasonable."

Ivancevich and Matteson report that the Stress Diagnostic Survey has shown generally acceptable levels of internal consistency (coefficient alphas from .53 to .79 for the job stressors), test-retest reliabilities (from .59 to .81), and stability (12-month stability from .48 to .64).¹¹¹ The scales were developed and refined through factor analysis.

3.4.2 Home-Related Stressors

Home-related stressors were measured using an interrole conflict scale developed by Kopelman, Greenhaus and Connolly¹¹² based on research by Pleck, Staines and Lang.¹¹³ Pleck et al. identified seven types of work-family conflicts,

¹¹¹ *Op. cit.*, Ivancevich and Matteson, 1987.

¹¹² *Op. cit.*, Kopelman, Greenhaus and Connolly, 1983.

¹¹³ *Op. cit.*, Pleck, Staines and Lang, 1980.

including excessive work time, schedule conflicts, and fatigue or irritability. Based on these findings, Kopelman and his associates developed the interrole conflict scale through the process of construct validation research.

The scale, which consists of eight items, was separated into two sections for the purposes of this study. All respondents to the study were asked to respond to the four questions in Section 1. Items in this section deal with the conflict between work and non-work time, for example, "After work I come home too tired to do some of the things I'd like to do." The four items in Section 2 were answered by only those survey respondents married and/or living with a child. Items in this section relate to conflicts between work roles and family roles (i.e., the role of parent and/or spouse). An example is "My job makes it difficult to be the kind of spouse or parent I'd like to be." Survey participants were asked to indicate the extent to which they agreed with the statement. Responses could range from 1 (strongly disagree) to 6 (strongly agree). Separate scores were obtained for the two parts of the scale by adding the items in each section.

The Kopelman, Greenhaus and Connolly scale was developed as part of a construct validation study, involving factor analysis, correlational and path analyses. Acceptable reliabilities were found (alpha of .89), distinct unidimensional factors emerged, and correlational and path analytic evidence was supportive of predicted relationships.

3.4.3 Personality Type -- Type A/B Behavior

The original research on personality type used a structured interview method

developed by Rosenman, Friedman, and their colleagues.¹¹⁴ Audiovisual recordings of the interviews were rated by judges, with fairly acceptable interrater reliabilities. In an effort to reduce the subjectivity and cost of the structured interview method, self-report questionnaires have been developed for making the Type A/B classification. The most notable of these is the 54-item Jenkins Activity Survey.¹¹⁵

Several more succinct Type A scales have been developed, including Matteson and Ivancevich's Behavior Activity Profile¹¹⁶ used in this study. This 21-item scale provides a total score for evaluating personality type, along with separate scores for assessing the following three Type A behavior patterns:

1. Hard driving/competitive -- a pattern displayed by a hard-working, competitive person.
2. Impatience -- a pattern exhibited by an individual who does not listen attentively, is anxious to interrupt, and is frustrated by waiting.
3. Job involvement -- a pattern present in a person whose job is the focal point in life. This person is immersed by job activities, basically living for the job.

The scale, with seven items for each of the three Type A behavior patterns, consists of paired sets of descriptions. Respondents were asked to indicate their own behavior on a seven-point continuum between each pair, e.g.

- People who know me well would describe me as:

hard driving and competitiverelaxed and easy going

¹¹⁴ *Op. cit.*, Rosenman, Friedman, and Strauss, 1964.

¹¹⁵ Jenkins, C. D., R. H. Rosenman, and M. Friedman, "Development of an Objective Psychological Test for Determination of the Coronary-Prone Behavior Pattern in Employed Man," *Journal of Chronic Diseases*, Vol. 20, 1967.

¹¹⁶ *Op. cit.*, Matteson and Ivancevich, Behavior Activity Profile, 1982.

- I frequently:
try to do several things at once.....tend to take things one at a time
- Someone who knows me well would say that I would:
rather work than play.....rather play than work

Adding the seven items per Type A behavior pattern yields a score for each individual pattern. Adding the scores for the three Type A patterns provides a total score. The total score for all 21 items will range from 21 to 147. Higher scores (87 and above) indicate Type A behaviors, while those below 82 are associated with Type B behaviors. Scores between 82 and 87 are classified as Type X, since the individual is displaying a combination of Type A and B behavior.

The authors report internal reliability coefficients for the scale of .7 to .72. A table of scores, based on responses of 1,200 individuals completing the scale, is available. The table is divided into male and female scores and provides percentile information relative to total scores for each group.

3.4.4 Job-Related Tension

Job-related tension was measured with House and Rizzo’s job-induced tension scale.¹¹⁷ The original version of this scale was developed by House and Rizzo as part of a study of organizational variables and was designed to measure the existence of tensions and pressures growing out of job requirements, including possible

¹¹⁷ *Op. cit.*, House and Rizzo, June, 1972.

outcomes such as ill health and irritability. Through factor and item analysis, an initial set of 26 items was reduced to a 17-item anxiety-stress questionnaire consisting of three subscales: job-induced tension (7 items), somatic tension (5 items), and general fatigue and uneasiness (5 items). This initial scale called for true/false responses.

The job-induced tension subscale was later expanded to a 12-item version, with 5-point responses. This scale was used by Senatra in an accounting study on stress,¹¹⁸ as well as in the present study.

The scale consists of 12 items, each of which is a statement. The respondent was asked to indicate the extent to which each item was true. Responses could range from 1 (not at all true) to 5 (true to a very great extent). A total score was determined by averaging the responses to the items. The following are examples of the items: "My job tends to directly affect my health," and "I work under a great deal of tension."

The initial scale showed internal reliability of .83 and was positively association with measures of role conflict and role ambiguity. Researchers using a 13-item version report an internal reliability coefficient of .89,¹¹⁹ test-retest correlation over four months of .79, and correlation between overall anxiety-stress scores and role conflict, role ambiguity,¹²⁰ and Supervisory Behavior Description Questionnaire measures of leaders' initiating structure and consideration.¹²¹

¹¹⁸ *Op. cit.*, Senatra, 1980.

¹¹⁹ Miles, R. H. and W. D. Perreault, "Organizational Role Conflict: Its Antecedents and Consequences," *Organizational Behavior and Human Performance*, 17, 1976.

¹²⁰ Miles, R. H., "An Empirical Test of Causal Inference Between Role Perceptions of Conflict and Ambiguity and Various Personal Outcomes," *Journal of Applied Psychology*, 60, 1975.

¹²¹ Miles, R. H. and Petty, M. M., "Leader Effectiveness in Small Bureaucracies," *Academy of Management Journal*, 20, 1977.

3.4.5 Job Dissatisfaction

The measure of job dissatisfaction was drawn from a questionnaire developed by Bullock¹²² and used in an accounting stress study by Senatra.¹²³ The scale was devised to measure job satisfaction defined by the author as "an attitude which results from a balancing and summation of many specific likes and dislikes experienced in connection with the job. This attitude manifests itself in evaluation of the job and of the employing organization."¹²⁴

The scale, as used in this study, has nine items, each requiring evaluation of the employing organization, the job itself, or the respondent's own position within the work group. Each item is followed by five responses, with the evaluative direction of the response presentation varying (five are ordered in a positive direction and four in a negative direction). An example of a question with a positively ordered answer is:

Which statement best tells how good a job you have:

1. The job is an excellent one, very much above the average.
2. The job is a fairly good one.
3. The job is only average.
4. The job is not as good as average.
5. The job is a very poor one, very much below the average.

An example of a question with a negatively ordered answer is:

How well satisfied are you with this job?

1. Completely dissatisfied.
2. More dissatisfied than satisfied.
3. About half and half.

¹²² Bullock, R. P., *Social Factors Related to Job Satisfaction: A Technique for the Measurement of Job Satisfaction*, Bureau of Business Research, Ohio State University, Columbus, Ohio, 1952.

¹²³ *Op. cit.*, Senatra, 1980.

¹²⁴ *Op. cit.*, Bullock, 1952, pg. 7.

4. More satisfied than not.
5. Completely satisfied.

The score is attained by averaging the responses to the various items, taking into account that some of the items are reversed as a means of controlling response bias. The score for job dissatisfaction is computed so that a higher number would mean greater job dissatisfaction. For example, a score of three would mean that there was more job dissatisfaction than if the score were two.

The author of the questionnaire reports the following reliability data: A test-retest correlation across six weeks of .94 from a pre-test sample, and successive split-half coefficients of reliability of .93, .90 and .90 from three separate samples. Evidence of validity was obtained through comparisons with objective criteria as well as judgments by a panel of experts.¹²⁵ Other researchers using the instrument have reported internal reliability of .91,¹²⁶ test-retest reliability over four months of .80,¹²⁷ and correlations with measures of role ambiguity and role conflict.¹²⁸

3.4.6 Propensity to Leave Public Accounting

Propensity to leave public accounting was measured by two questions taken

¹²⁵ *Ibid.*, Bullock, 1952, pg. 5.

¹²⁶ *Op. cit.*, Miles and Petty, 1975.

¹²⁷ *Op. cit.*, Miles, 1975.

¹²⁸ Miles, R. H., "A Comparison of the Relative Impacts of Role Perceptions of Ambiguity and Conflict by Role," *Academy of Management Journal*, 19, 1976.

from an instrument developed by Cammann, Fichman, Jenkins, and Klesh,¹²⁹ along with an additional question asked in the Senatra study.¹³⁰

The Michigan Organizational Assessment Questionnaire contains a number of scales used to measure work attitudes, including a three-item index of employees' intention to leave their jobs. Two items were taken from this index: "I often think about leaving public accounting," and "I will probably look for a new job outside of public accounting in the next year." Participants were asked to respond to these two statements by indicating how they felt about the statement on a scale of 1 (strongly disagree) to 6 (strongly agree).

A third question (How long do you plan to stay in public accounting?) was taken from the Senatra study.¹³¹ This question has six responses ranging from 1 (less than one more year) to 6 (five or more years).

Responses to the first two questions (from the Cammann instrument) were averaged to obtain a measure of intention to leave public accounting. The remaining question (from the Senatra study) provided information about long-term commitment to remain in public accounting.

The following reliability and validity data is reported by the authors on the Cammann instrument: coefficient alpha of .83, and negative correlation with measures of overall job satisfaction and job involvement.

¹²⁹ *Op. cit.*, Seashore, Lawler, Mirvis and Cammann, 1982.

¹³⁰ *Op. cit.*, Senata, 1980.

¹³¹ *Ibid.*, Senatra, 1980.

3.4.7 Demographics

Background information about the participants was gathered in the final sections of the questionnaires. Some of this information (gender, marital status, number of children, and employment status of spouse) was used in analyzing the moderating effects of gender and family type on the hypothesized relationships. Additional information, such as age, education, length of employment, position held, and type and size of firm, was used in developing a profile of the participants.

3.5 QUESTIONNAIRE CONSTRUCTION

Separate questionnaires were developed for the two groups of participants. The questionnaire for the "non-turnover" group (those individuals presently holding public accounting positions), included measures of work-related stressors, home-related stressors, personality type, job-related tension, job dissatisfaction, and propensity to leave public accounting.

The questionnaire for the "turnover" group (those individuals previously employed in public accounting positions who now hold jobs outside of public accounting) included measures of work-related stressors, home-related stressors, personality type, and job-related tension. Participants were asked to respond to each item based on their experiences and attitudes when last employed in public accounting. To make this task easier, items in the scales were worded in the past tense. For example, an item which appeared in the non-turnover questionnaire as, "The goals and objectives for my job are not clear," appeared in the turnover

questionnaire as, "The goals and objectives for my job were not clear." Many questions in the demographics section of the questionnaire were similarly worded to gather information about the backgrounds of the respondents while last employed in public accounting positions.

In addition to the above measures, the turnover questionnaire included twelve questions asking participants to compare (using a six-point scale) their present position with their last public accounting position on the following dimensions: role ambiguity, role conflict, quantitative overload, qualitative overload, career progress, responsibility for people, time pressures, job scope, compatibility of job with family life, job-related tension, job dissatisfaction, and financial rewards. These questions were asked for exploratory purposes only, not to test any specific hypothesis.

The questionnaires, both twelve pages in length, were printed as 6" by 9" booklets with photographically-reduced pages. This was done to present an attractive, well-organized questionnaire that looked easy to complete.¹³² Copies of the questionnaires along with the cover letters appear in the Appendices A through C.

3.5.1 Pilot Study

A pilot study was conducted on September 1, 1987, to assess the applicability of the measurement instrument to individuals in middle-level public accounting positions and to determine if further refinement of the instrument was necessary. The non-turnover questionnaire was pretested at Virginia offices of two Big-Eight accounting firms. Nine individuals (one senior manager, one manager, and seven

¹³² Dillman, Don A., *Mail & Telephone Surveys, The Total Design Method*, John Wiley & Sons, New York, 1978, p. 121.

seniors) from one firm and four individuals (one partner, and three seniors) from the other firm participated in the pretesting of the questionnaire.

At both locations, participating individuals were gathered in one room. Those holding senior or manager positions reviewed the cover letters and completed the questionnaires. These individuals were encouraged to ask questions about the questionnaire and to indicate any difficulty they had in understanding directions or terminology. In addition, the instrument and cover letter were reviewed by the senior manager at one location and the partner at the other location.

As a result of suggestions offered during the pretests, wording and format changes were made to the questionnaire which improved its understandability and appropriateness to individuals in public accounting positions. The average time needed to complete the questionnaire during the pretest was 20 minutes. This estimated completion time was mentioned in the cover letter of the mailed questionnaires.

The turnover questionnaire was not pretested due to the difficulty of obtaining a representative turnover sample. Given the similarities between the two questionnaires, many of the suggestions made during the pretest for the non-turnover questionnaire were applicable to the turnover questionnaire.

3.6 SAMPLE

Several factors were considered in selecting a sample. To increase the generalizability of the results, the sample should be drawn from a national population of certified public accountants. Also, study participants should hold middle-level

public accounting positions. These participants should have a minimum of three years of public accounting experience with an average of five years. Furthermore, to investigate turnover as a possible behavioral outcome of stress, the sample should consist of two groups: (a) individuals presently holding public accounting positions, and (b) persons previously employed in public accounting positions who now hold jobs outside of public accounting. Finally, the sample should be of sufficient size to meet the sample-size requirements of the proposed statistical tests.

3.6.1 Sample Selection

A national sample was obtained by using the membership records of the American Institute of Certified Public Accountants (AICPA), a national membership organization of 250,000 CPA's.

The study design called for individuals with a minimum of three years of public accounting experience and an average of five years' experience. Therefore, the sample was not drawn from the entire membership of the AICPA. Because the Institute's records do not contain information on years of experience, a surrogate measure was developed. The surrogate chosen was the year in which the individual joined the Institute. Only individuals joining the Institute in 1985 were included in the sample. These individuals were expected to have an average of five years' experience at the time of the study: two and a half years prior to joining the Institute and two and a half years after joining. Experience earned prior to joining the Institute would include, on average, twenty months of experience obtained before first becoming eligible to be a CPA.¹³³

¹³³ This figure was estimated by the researcher after reviewing state education and experience

3.6.2 Non-turnover and Turnover Groups

The study called for two sample groups: those presently holding public accounting positions (the non-turnover group), and those previously employed in public accounting positions now holding jobs outside of public accounting (the turnover group). Because the AICPA does not include previous employment information in its membership data base, the turnover group was identified in the following way:

1. In July, 1987, the AICPA membership records were accessed and a data file established of all individuals joining the Institute in 1985 and listed on the Institute's records as being employed in public accounting at that time. This data file contained 7,863 individuals.
2. The 1986/1987 membership year for the Institute ended on July 31, 1987. At that time, members received a bill for the next year's dues along with a form asking them to indicate changes of address or employment status. During August and September, the Institute updated its records to reflect these reported changes.
3. During the first week of October, 1987, the original data file of 7,863 Institute members was matched with the newly updated records. The data file was updated to reflect address and employment status changes. One hundred and sixty-eight individuals who were no longer Institute members were dropped from the data file, bringing the number in the file to 7,695.

requirements to obtain a CPA certificate (as listed in the Digest of State Accountancy Laws and State Board Regulations, AICPA and National Association of State Boards of Accountancy, 1985), and weighting the figure according to the number of CPA's in each state (per Tabulation of CPA's, compiled by the American Institute of Certified Public Accountants, as of July 31, 1986.)

4. A computer program was used to divide the updated data file into the required two groups, based on the individual's employment status code:
 - a. The turnover group, consisting of 350 individuals whose employment status had changed from public accounting to some category other than public accounting.
 - b. The non-turnover group, consisting of the remaining 7,345 individuals whose public accounting classification had not changed since July, 1987.

3.6.3 Sample Size

Due to multiple hypotheses and the potential for further exploration of these hypotheses through a combination of several moderators, it was decided to include a fairly large number of individuals in the sample. The 350 individuals in the turnover group (40% females and 60% males) became the turnover sample. The chosen sample size for the non-turnover group was 1,600. Each individual in the non-turnover group had one of the following public accounting classifications: code 102 (sole practitioner), code 202 (partner), code 302 (staff member) and code 402 (senior staff member). To increase the likelihood that individuals in the sample would be in middle-level public accounting positions, it was decided to include in the sample only those individuals classified as 402 (senior staff member). A computer program was used to select a random sample of 1,600 subjects from the group of 3,126 individuals with public accounting classifications of 402. The selected individuals (32% females and 68% males) became the non-turnover sample.

The total sample consisted of 350 turnover and 1,600 non-turnover individuals. These individuals all joined the Institute in 1985 and were expected to have

approximately five years of public accounting experience. The total sample was approximately 33% females and 67% males.

3.7 IMPLEMENTATION OF THE SURVEY

A disadvantage of the mail survey method of data collection is that response rates are typically low, often less than 50 percent. Research indicates, however, that care in questionnaire construction and follow-up procedures can increase return rates.¹³⁴ Several suggestions by Dillman¹³⁵ are incorporated in this study.

3.7.1 Questionnaire Design

Attention was paid to the appearance of the questionnaires in an effort to convey to the respondents the importance of the study. The questionnaires were professionally printed as 6" by 9" booklets. The front covers were designed to create a positive first impression. In addition to the project title, the cover pages had a graphic illustration of the CPA commemorative stamp issued by the U.S. Postal Service in honor of the AICPA centennial. The questions were arranged to make the questionnaire appear easy to complete and to keep respondents from skipping individual items or whole sections.

¹³⁴ *Op. cit.*, Miller, Delbert C., 1983, pg. 114.

¹³⁵ *Op. cit.*, Dillman, Don A., 1978.

3.7.2 Cover Letters

The cover letters explained the purpose of the study and emphasized to the respondent the importance of their responses. Respondents were encouraged to call the researcher collect if they had any questions. This offer was made to further emphasize their importance to the study. To give the impression of individual attention, each letter was personally addressed to the respondent and signed by the researcher.

3.7.3 Other Measures to Enhance Response

To increase their interest in the study, respondents were promised a copy of the results. Included with each questionnaire was a CPA commemorative postage stamp in a small transparent stamp-collecting envelope. This was given to each individual as a token of appreciation in advance for participating in the study.

3.7.4 Identifying the Questionnaire

An identification number was stamped onto the front of each questionnaire. Respondents were told that they could be assured of confidentiality and that the identification number was for mailing purposes only. It allowed the researcher to check the respondent's name off of the mailing list to avoid the inconvenience of a second mailing.

3.7.5 Mailing the Questionnaires

All questionnaires were sent by first-class mail. Although bulk mailing would have been less costly, it was avoided for several reasons. First, it could have made the study appear less important. Second, bulk rate receives a very low handling priority, and letters sent bulk rate cannot be forwarded.

Each respondent was provided with a postage-paid business reply envelope to use when returning the questionnaire. The mailout date was selected to maximize returns. The early October date was chosen because it came after summer vacations, but early enough to enable the questionnaires to be returned before the Thanksgiving and Christmas holidays.

3.7.6 Follow-up Mailing

By using identification numbers, the researcher was able to keep track of all returned questionnaires. After approximately three weeks a follow-up letter was sent to each respondent who had not returned the questionnaire. This follow-up letter restated the purpose of the study and the importance of each individual's response. Although a replacement questionnaire was not included in this second mailing, individuals needing another questionnaire were encouraged to write or call the researcher collect to request a replacement.

As each questionnaire was returned, the date of its receipt was marked on the front of the questionnaire. This date was used to separate those responding after the second mailing (the late respondents) from those responding prior to this second

mailing (the early respondents). A comparison of the two groups could yield evidence regarding the existence of a non-response bias.

3.8 STATISTICAL METHODS

Hypotheses 1 through 3 (the relationships between stressors and job-related tension, job dissatisfaction, and propensity to leave public accounting) were tested by Pearson product-moment correlations. Hypothesis 4 (the relationships between stressors and turnover) was tested using one-way analysis of variance.

Hypotheses 5 and 6 (the relationships between job-related tension and job dissatisfaction and propensity to leave public accounting) were tested by Pearson product-moment correlations. Hypothesis 7 (the relationship between job-related tension and turnover) was tested using one-way analysis of variance. Pearson product-moment correlation was used to test Hypothesis 8 (the relationship between job dissatisfaction and propensity to leave public accounting).

Hypothesis 9 addresses the moderating effect of gender on the hypothesized relationships investigated in H1 through H8. For those hypotheses that were tested using correlation (H1, H2, H3, H5, H6 and H8), a test was performed to see if the correlations for males and the correlations for females differed significantly. For hypotheses tested using one-way analysis of variance (H4 and H7), a two-way analysis of variance procedure was used to investigate the moderating effect of gender. Hypothesis 10 (moderating effect of family type) and Hypothesis 11 (moderating effect of personality type) were tested in the same way as Hypothesis 9. Finally, descriptive statistics were used to generate a profile of the sample.

Chapter 4

RESULTS OF THE EMPIRICAL STUDY

4.1 RESPONSE

Table 1 contains information on the number of individuals in the sample and the response rates. The initial sample of 1,950 consisted of two groups: 1,600 individuals presently holding public accounting positions (the non-turnover group), and 350 individuals previously employed in public accounting positions now holding jobs outside of public accounting (the turnover group). The number in the final sample varied slightly from these numbers due to the following factors:

- a. The deletion of individuals living outside of the United States.
- b. Questionnaires returned by the Post Office as nondeliverable.
- c. Misclassification of individuals into an incorrect group, i.e. individuals originally included in the non-turnover group who subsequently notified the researcher that they were no longer employed in public accounting, and individuals

Table 1. Number in the Sample and Response Rates

	<u>NONTURNOVER SAMPLE</u>	<u>TURNOVER SAMPLE</u>	<u>COMBINED SAMPLE</u>
SAMPLE			
Initial sample, as described in Chapter 3	1,600	350	1,950
Individuals living outside the United States	-	(4)	(4)
Nondeliverable questionnaires	(10)	(1)	(11)
Individuals selected for the nonturnover group reporting they were no longer employed in public accounting	(8)	-	(8)
Individuals selected for the turnover group reporting they were still employed in public accounting	-	(13)	(13)
Follow-up mailings of new questionnaires to individuals originally misclassified	. 11	8	19
	<hr/>	<hr/>	<hr/>
FINAL SAMPLE	1,593	340	1,933
RESPONSE			
From first mailing (Percent response)	777 (49%)	153 (48%)	940 (49%)
From second mailing (Percent response)	234 (14%)	28 (8%)	262 (13%)
OVERALL RESPONSE	1,011	191	1,202
(PERCENT RESPONSE)	(63%)	(56%)	(62%)

included in the turnover group who notified the researcher that they still held public accounting positions.

- d. Subsequent mailings of new questionnaires to individuals originally misclassified.

After these adjustments, the final sample consisted of 1,933 individuals – 1,593 in the non-turnover group and 340 in the turnover group.

As explained in Chapter 3, there were two separate mailings. The second mailing was sent to those individuals who did not respond to the first. In response to the first mailing on October 12, 1987, 940 questionnaires were returned, yielding an initial response rate of 49% (940/1,933). The second mailing on November 9, 1987, resulted in 262 additional responses, increasing the overall response rate to 62% (1,202/1,933). The response rate for the non-turnover group was 63% (1,011/1,593) while the response rate for the turnover group was 56% (191/340).

4.2 DEMOGRAPHIC CHARACTERISTICS

Both the non-turnover and turnover questionnaires included questions concerning demographic characteristics. The answers to these questions, which are summarized in Tables 2 through 8, are presented separately for the two sample groups.

4.2.1 Non-turnover Sample

The personal characteristics of the non-turnover sample of 1011 individuals are presented in Table 2. The average age of this group was 30 years. Sixty-eight percent were male and 32% were female. Twenty-two percent held graduate degrees.

The work characteristics of the non-turnover sample are presented in Table 3. Ninety-nine percent had been employed in public accounting for at least three years, with an average tenure for the group of five years, ten months. These individuals occupied middle-level positions in their firms, with 40% in senior positions, 43% in manager positions and 13% in senior manager positions. The most common area of specialization was auditing (40%), followed by tax (31%). Forty-five percent were employed by local CPA firms, while 39% worked for Big-Eight firms.

The family characteristics and work requirements of the non-turnover group are presented in Table 4. Twenty-two percent of the individuals had never married, while 59% did not have children. Twenty-three percent were part of a traditional family where one member was not employed full time, 30% were members of dual-career marriages with no children, and 20% were members of dual career marriages with children.

These individuals reported working an average of 59 hours a week during busy season (which lasted for 16 weeks). During the rest of the year, the average work week was 44 hours. An average of 20 nights per year was spent out of town on work.

Table 2. Personal Characteristics of Nonturnover Sample

SEX	Frequency	Percent
Male	682	67.9
Female	323	32.1

AGE	Frequency	Percent
(Average age: 30 years)		
Under age 26	37	3.7
Age 26 -- 29	528	52.6
Age 30 -- 35	266	29.4
Over age 35	117	14.3

EDUCATION	Frequency	Percent
Bachelor's degree, non-business	116	11.5
Bachelor's degree, business	897	88.7
Graduate degree, non-business	35	3.5
Graduate degree, business	187	18.5

Since some respondents appear in more than one educational category, the percentages total more than 100%

Table 3. Public Accounting Position Characteristics of Nonturnover Sample

LENGTH OF TIME IN PRESENT POSITION	Frequency	Percent
(Average time: 5 years, 10 months)		
Under 3 years	10	1.0
3 – 4 years	236	23.5
5 – 6 years	496	49.4
7 – 8 years	177	17.6
Over 8 years	85	8.5

PRESENT POSITION	Frequency	Percent
Junior	2	.2
Senior assistant	7	.7
Senior	394	39.6
Manager	433	43.4
Senior manager	129	12.9
Partner	32	3.2

AREA OF SPECIALIZATION	Frequency	Percent
Audit	405	40.0
Tax	308	30.5
Management advisory services	42	4.2
Small business clients	165	16.3
Governmental	5	.5
Multiple areas *	86	8.5

* Respondents identifying more than one specialization area

TYPE OF FIRM	Frequency	Percent
National, Big-Eight	388	38.7
National, Non-Big-Eight	63	6.3
Regional	105	10.5
Local	445	44.5

Table 4. Family Characteristics and Work Requirements of Nonturnover Sample

FAMILY CHARACTERISTICS OF SAMPLE MEMBERS:

MARITAL STATUS	Frequency	Percent
Never married	222	22.1
Married	728	72.4
Divorced	45	4.5
Separated	8	.8
Widowed	2	.2

NUMBER OF CHILDREN	Frequency	Percent
None	587	58.5
One	201	20.0
Two	150	15.0
Three	49	4.9
Four or more	16	1.6

EMPLOYMENT STATUS OF SPOUSE	Frequency	Percent
Not married (does not apply)	266	26.8
Spouse not employed	126	12.7
Spouse employed part-time	104	10.5
Spouse employed full-time	495	50.0

FAMILY TYPE	Frequency	Percent
Single	253	25.6
Traditional family	228	23.1
Dual career couple, no children	293	29.6
Dual career couple, children	194	19.6
Single, children	21	2.1

WORK REQUIREMENTS OF SAMPLE MEMBERS:	Mean
Average weekly hours worked during "busy season"	59.3 hours
Average weekly hours worked outside of "busy season"	43.9 hours
Number of weeks in "busy season"	16.1 weeks
Number of nights per year spent out of town on work	19.6 nights

4.2.2 Turnover Sample

Table 5 shows the personal characteristics of the turnover sample.¹³⁸ This group consisted of 191 individuals with an average age of 30 years. Fifty-nine percent were male and 41% were female. Nineteen percent held graduate degrees.

The characteristics of public accounting positions previously held by members of the turnover group are presented in Table 6. Before leaving public accounting, these individuals were employed for an average of four and a half years. Most (90%) had at least three years' public accounting experience. Eighty-seven percent had progressed to middle-level positions, with 61% leaving at the senior level, and 22% leaving at the manager level. Auditing was the most common area of specialization (47%), followed by tax (23%). Approximately 47% were employed by Big-Eight firms while 35% were employed by local firms.

Table 7 summarizes the family characteristics and work requirements of the turnover sample. Twenty-seven percent of these individuals had never married, while 64% did not have children. Twenty percent were part of a traditional family, 32% were members of dual-career marriages with no children, and 16% were members of dual career marriages with children.

These individuals reported working an average of 60 hours a week in their former public accounting positions during busy season, which lasted 17 weeks. Outside of busy season, they worked an average of 45 hours a week. Their travel requirements included spending an average of 29 nights per year out of town on work.

¹³⁸ Comparable statistics for the non-turnover sample are the following: age 30, 68% males, 32% females, 22% holding graduate degrees.

Table 5. Personal Characteristics of Turnover Sample

SEX	Frequency	Percent
Male	113	59.2
Female	78	40.8

AGE	Frequency	Percent
(Average age: 30 years)		
Under age 26	15	7.9
Age 26-69	97	51.3
Age 30-35	55	29.1
Over age 35	22	11.7

EDUCATION * (WHEN LEFT PUBLIC ACCOUNTING)	Frequency	Percent
Bachelor's degree, non-business	23	12.0
Bachelor's degree, business	167	87.4
Graduate degree, non-business	6	3.1
Graduate degree, business	30	15.7

* Since some respondents appear in more than one educational category, the percentages total more than 100%

Table 6. Public Accounting Position Characteristics of Turnover Sample**LENGTH OF TIME EMPLOYED
IN PUBLIC ACCOUNTING**

(Average time: 4 years, 6 months)

	Frequency	Percent
Under 3 years	19	10.0
3 – 4 years	82	43.2
5 – 6 years	72	37.9
7 – 8 years	13	6.8
Over 8 years	4	2.1

**LAST POSITION HELD IN
PUBLIC ACCOUNTING**

	Frequency	Percent
Junior	9	4.8
Senior assistant	15	8.0
Senior	115	61.2
Manager	41	21.8
Senior manager	4	2.1
Partner	4	2.1

**AREA OF SPECIALIZATION
OF LAST PUBLIC ACCOUNTING POSITION**

	Frequency	Percent
Audit	89	46.6
Tax	43	22.5
Management advisory services	8	4.2
Small business clients	28	14.7
Governmental	3	1.6
Multiple areas *	20	10.4

* Respondents identifying more than one specialization area

**TYPE OF FIRM OF LAST
PUBLIC ACCOUNTING POSITION**

	Frequency	Percent
National, Big-Eight	88	46.6
National, Non-Big-Eight	14	7.4
Regional	21	11.1
Local	66	34.9

Table 7. Family Characteristics and Work Requirements of Turnover Sample**FAMILY CHARACTERISTICS OF SAMPLE MEMBERS:****MARITAL STATUS WHEN LAST EMPLOYED
IN PUBLIC ACCOUNTING**

	Frequency	Percent
Never married	51	26.8
Married	128	67.4
Divorced	8	4.2
Separated	2	1.1
Widowed	1	.5

**NUMBER OF CHILDREN WHEN LAST EMPLOYED
IN PUBLIC ACCOUNTING**

	Frequency	Percent
None	120	63.5
One	35	18.5
Two	23	12.2
Three	8	4.2
Four or more	3	1.6

**EMPLOYMENT STATUS OF SPOUSE WHEN
LAST EMPLOYED IN PUBLIC ACCOUNTING**

	Frequency	Percent
Not married (does not apply)	49	26.2
Spouse not employed	25	13.4
Spouse employed part-time	16	8.5
Spouse employed full-time	97	51.9

**FAMILY TYPE WHEN LAST EMPLOYED
IN PUBLIC ACCOUNTING**

	Frequency	Percent
Single	55	29.4
Traditional family	38	20.3
Dual career couple, no children	60	32.1
Dual career couple, children	29	15.5
Single, children	5	2.7

**WORK REQUIREMENTS OF SAMPLE MEMBERS
WHEN LAST EMPLOYED IN PUBLIC ACCOUNTING**

	Mean
Average weekly hours worked during "busy season"	60.1 hours
Average weekly hours worked outside of "busy season"	45.2 hours
Number of weeks in "busy season"	16.8 weeks
Number of nights per year spent out of town on work	29.2 nights

The characteristics of the positions now held by individuals in the turnover group are presented in Table 8. Most have left public accounting within the last eight months. Ten individuals left to become full-time graduate students, while six others left to become full-time homemakers. The remaining individuals took positions in various organizations, most joining private companies (69%) or financial institutions (15%). Many of these individuals became company controllers or assistant controllers (28%). Others took accounting (20%), internal auditing (18%), or finance positions (16%). These individuals worked an average of 45 hours a week in their new positions.

4.3 DESCRIPTIVE STATISTICS

Table 9 displays descriptive statistics for the non-turnover sample. Table 10 shows comparable statistics for the turnover sample. Since a small number of respondents omitted one or more items of information requested in the questionnaires, the number of usable observations varied slightly among the variables.

The following statistics are presented for each variable used in the study: the number of respondents, the number of points on the scale used in measuring the variable, the mean response, the standard deviation of each mean response, and the coefficient alpha. Chronbach's alpha (the average inter-item correlation weighted by the number of items in the scale) was used as a measure of internal reliability.

Table 8. Non-Public Accounting Position Characteristics of Turnover Sample

NUMBER OF MONTHS SINCE LAST EMPLOYED IN A PUBLIC ACCOUNTING POSITION	Frequency	Percent
(Average: 8.5 months)		
Fewer than 3 months	14	7.6
3 -- 5 months	78	42.4
6 -- 8 months	25	13.6
9 -- 11 months	13	7.1
12 -- 14 months	29	15.7
15 or more months	25	13.6

AVERAGE WEEKLY HOURS WORKED IN PRESENT POSITION: 44.5 hours

TYPE OF EMPLOYER AND POSITION HELD *

FUNCTIONAL AREA IN PRESENT ORGANIZATION

TYPE OF EMPLOYER	Audit	Acct.	Controller	Tax	Finance	Other	Total	%
Private Company	19	14	43	10	18	12	116	69%
Financial Institution\ Bank	7	6	3	2	5	3	26	15%
Government	4	4	1	--	2	1	12	7%
Educational Institution	--	4	--	--	1	2	7	4%
Not-for-profit Organization	--	6	1	--	1	--	8	5%
Totals	30	34	48	12	27	18	169	100%
Percent	18%	20%	28%	7%	16%	11%	100%	

* 169 individuals in the turnover group are now employed full time, 10 are full-time students, and 6 are full-time homemakers.

Table 9. Descriptive Statistics -- Nonturnover Sample

VARIABLE	N	SCALE RANGE	MEAN	S.D.	ALPHA
WORK-RELATED STRESSORS *					
Role Ambiguity	1,001	1 - 7	3.17	1.12	.80
Role Conflict	1,000	1 - 7	3.11	1.03	.68
Quantitative Overload	1,003	1 - 7	3.57	1.11	.71
Qualitative Overload	1,004	1 - 7	2.43	.89	.71
Career Progress	1,004	1 - 7	2.79	1.28	.81
Responsibility for People	1,006	1 - 7	2.92	1.06	.74
Time Pressure	1,006	1 - 7	4.48	1.30	.86
Job Scope	1,006	1 - 7	3.01	.96	.62
HOME-RELATED STRESSORS *					
Conflict with Leisure	1,002	1 - 6	4.08	1.07	.86
Conflict with Family	**770	1 - 6	4.20	1.17	.89
JOB-RELATED TENSION	1,010	1 - 5	3.00	.73	.89
JOB DISSATISFACTION	1,011	1 - 5	2.20	.66	.90
PROPENSITY TO LEAVE PUBLIC ACCOUNTING *	1,006	1 - 6	3.36	1.54	.85
PERSONALITY TYPE	971	21 - 147	87.00	13.85	.82

* Due to the limited number of items in each of these scales, data from the respondents was not analyzed unless all items making up the scale were answered.

** This scale was answered by only those individuals living with a spouse and/or child.

Table 10. Descriptive Statistics -- Turnover Sample

VARIABLE	N	SCALE RANGE	MEAN	S.D.	ALPHA
WORK-RELATED STRESSORS *					
Role Ambiguity	186	1 - 7	3.41	1.19	.81
Role Conflict	187	1 - 7	3.34	1.14	.71
Quantitative Overload	186	1 - 7	3.43	1.07	.67
Qualitative Overload	185	1 - 7	2.86	1.05	.70
Career Progress	185	1 - 7	3.32	1.52	.84
Responsibility for People	186	1 - 7	2.74	1.03	.75
Time Pressure	186	1 - 7	4.82	1.27	.84
Job Scope	187	1 - 7	3.52	.98	.52
HOME-RELATED STRESSORS *					
Conflict with Leisure	189	1 - 6	4.52	.93	.82
Conflict with Family	**142	1 - 6	4.43	1.11	.88
JOB-RELATED TENSION	191	1 - 5	3.07	.81	.90
PERSONALITY TYPE	183	21-147	88.00	14.14	.82

* Due to the limited number of items in each of these scales, data from the respondents was not analyzed unless all items making up the scale were answered.

** This scale was answered by only those individuals living with a spouse and/or child.

A rank ordering (by mean score) of work-related and home-related stressors for the non-turnover group is presented in Table 11.¹³⁷ Table 12 shows comparable data for the turnover group.¹³⁸ For both groups, the reported means for home-related stressors (conflict with leisure and conflict with family) were higher than the reported means for the work-related stressors. For both groups, the strongest work-related stressor was time pressure.

4.4 STATISTICAL TESTS OF HYPOTHESES

The purpose of this study is to gain insight into the following: (a) the particular stressors impacting on individuals in middle-management positions in public accounting, (b) the negative effects of the stressors, and (c) the moderating effect of personal characteristics on the consequences of stress. Chapter 3 presented the eleven hypotheses to be tested in addressing these issues.

This section of the chapter reports the results of the statistical tests performed on the eleven hypotheses. For the convenience of the reader, each hypothesis will be restated and discussed briefly. The discussion of the test results for each hypothesis includes the following: (a) identification of the groups tested (non-turnover, turnover, or both),¹³⁹ (b) development of the variables used in the test,

¹³⁷ Appendix D contains correlation matrices for the work-related stressors for the non-turnover and the turnover groups.

¹³⁸ Home-related stressors were measured on a 6-point scale while work-related stressors were measured on a 7-point scale. For comparability purposes, the scores for the two home-related stressors were converted from 6-point-scale responses to 7-point-scale responses. The means obtained through this conversion process may not be the same as the means which would have been obtained had the participants been asked to respond to the items using a 7-point scale.

¹³⁹ Most tests involve the non-turnover group only. Data from the turnover sample is used in testing

Table 11. Mean Scores of Work-related and Home-related Stressors for Nonturnover Group

RANK	STRESSOR	MEAN SCORE
1	Conflict with family	4.90 *
2	Conflict with leisure	4.76 *
3	Time pressure	4.48
4	Quantitative overload	3.57
5	Role ambiguity	3.17
6	Role conflict	3.11
7	Job scope	3.01
8	Responsibility for people	2.92
9	Career progress	2.79
10	Qualitative overload	2.43

*Home-related stressors were measured on a 6-point scale while work-related stressors were measured on a 7-point scale. For comparative purposes, the scores for the home-related stressors have been converted to a 7-point scale. This conversion was accomplished as follows:

Conflict with family: mean of $4.20/6.00 \times 7 = 4.90$

Conflict with leisure: mean of $4.08/6.00 \times 7 = 4.76$

Table 12. Mean Scores of Work-related and Home-related Stressors for Turnover Group

RANK	STRESSOR	MEAN SCORE
1	Conflict with leisure	5.27 *
2	Conflict with family	5.17 *
3	Time pressure	4.82
4	Job scope	3.52
5	Quantitative overload	3.43
6	Role ambiguity	3.41
7	Role conflict	3.34
8	Career progress	3.32
9	Qualitative overload	2.86
10	Responsibility for people	2.74

* Home-related stressors were measured on a 6-point scale while work-related stressors were measured on a 7-point scale. For comparative purposes, the scores for the home-related stressors have been converted to a 7-point scale. This conversion was accomplished as follows:

Conflict with leisure: mean of $4.52/6.00 \times 7 = 5.27$
Conflict with family: mean of $4.43/6.00 \times 7 = 5.17$

(c) the statistical test employed, and (d) the results of that test. Implications of the results will be discussed in Chapter 5.

4.4.1 HYPOTHESIS 1: Each stressor (whether work-related or home-related) is not related to job-related tension.

The purpose of this hypothesis is to examine the relationships between work-related stressors, home-related stressors, and job-related tension. The testing of this hypothesis involved the non-turnover group only. The variables involved in testing this hypothesis (work-related stressors, home-related stressors, and job-related tension) were determined as follows.

4.4.1.1 *Work-Related Stressors*

The score for each of the work-related stressors was determined by averaging the responses (on a 7-point scale) to the four items for each stressor. Scores were determined for only those respondents who answered all four items. The following chart shows the questionnaire items used for each work-related stressor:

H4 and H7 and in H9, H10, and H11 when assessing the moderating effects of gender, family type, and personality type on the relationships hypothesized in H4 and H7.

Work-Related Stressor	Non-turnover Questionnaire Section I Question Numbers			
1. Role ambiguity	1,	9,	17,	25
2. Role conflict	2,	10,	18,	26
3. Quantitative overload	3,	11,	19,	27
4. Qualitative overload	4,	12,	20,	28
5. Career progress	5,	13,	21,	29
6. Responsibility for people	6,	14,	22,	30
7. Time pressure	7,	15,	23,	31
8. Job scope	8,	16,	24,	32

4.4.1.2 Home-Related Stressors

The score for each of the home-related stressors was determined similarly by averaging the responses (on a 6-point scale) to the four items for each conflict scale. Again, scores were determined for only those respondents who answered all four questions. The following are the questionnaire items used for the home-related stressors.

Home-Related Stressors	Non-turnover Questionnaire Section III Question Numbers			
1. Conflict with leisure	1,	2,	3,	4
2. Conflict with family	5,	6,	7,	8

4.4.1.3 Job-Related Tension

The score for job-related tension was obtained by adding the responses (on a 5-point scale) to the twelve questions on the job-related tension scale and dividing the sum by twelve. Where fewer questions were answered, an average was obtained

based on the number of questions answered. The twelve items used in determining the job-related tension score are contained in Section II of the non-turnover questionnaire.

4.4.1.4 Results of Statistical Tests

The relationships were tested using Pearson Product Moment Correlations. Table 13 presents the correlation coefficients for the work-related and home-related stressors. The associated probability values are also shown. All of the correlations were statistically significant at the .0001 level.

The home-related stressors (conflict with leisure and conflict with family roles) had the highest correlations with job-related tension. Among the work-related stressors, time pressure had the highest correlation coefficient, followed by role conflict and quantitative overload. All of these stressors result from excessive or conflicting demands, either from within the organization or from outside.

4.4.2 HYPOTHESIS 2: Each stressor (whether work-related or home-related) is not related to job dissatisfaction.

The purpose of this hypothesis is to examine the relationships between work-related stressors, home-related stressors, and job dissatisfaction. The testing of this hypothesis involved the non-turnover group only. Scores for work-related stressors and home-related stressors were determined as described under Hypothesis 1. The variable of job dissatisfaction was determined as follows:

Table 13. Correlation Coefficients for Hypothesis 1: Relationship Between Each Stressor and Job-related Tension

Stressor	Correlation Coefficient	Probability Value
Conflict with Leisure	.69	.0001
Conflict with Family Roles	.53	.0001
Time Pressure	.53	.0001
Role Conflict	.49	.0001
Quantitative Overload	.47	.0001
Qualitative Overload	.44	.0001
Responsibility for People	.43	.0001
Role Ambiguity	.42	.0001
Job Scope	.41	.0001
Career Progress	.33	.0001

4.4.2.1 Job Dissatisfaction

The scale for job dissatisfaction consisted of nine items, with 5 responses for each item. Four of the items (items 3, 5, 6 and 9) were reverse scored. The score was attained by averaging the responses to the various items, taking into account that some of the items were reversed as a means of controlling response bias. Where fewer than nine questions were answered, an average was obtained based on the number of questions answered. The nine questions used in determining the job dissatisfaction score are contained in Section V of the non-turnover questionnaire.

4.4.2.2 Results of Statistical Tests

The relationships were tested using Pearson Product Moment Correlations. Table 14 presents the correlation coefficients for the work-related and home-related stressors, along with the associated probability values. All of the correlations are statistically significant at the .0001 level.

The work-related stressors had the highest correlations with job dissatisfaction. The stressors with the highest correlation coefficients, career progress and job scope, relate to individuals' perceptions of future opportunities and the importance of their present jobs. The stressors with the third and fourth highest correlation coefficients, role ambiguity and role conflict, are organizational in nature and result from unclear job expectations or conflicting demands.

Table 14. Correlation Coefficients for Hypothesis 2: Relationship Between Each Stressor and Job Dissatisfaction

Stressor	Correlation Coefficient	Probability Value
Career Progress	.58	.0001
Job Scope	.55	.0001
Role Ambiguity	.44	.0001
Role Conflict	.39	.0001
Qualitative Overload	.30	.0001
Conflict with Leisure	.25	.0001
Responsibility for People	.24	.0001
Time Pressure	.21	.0001
Conflict with Family Roles	.21	.0001
Quantitative Overload	.16	.0001

4.4.3 HYPOTHESIS 3: Each stressor (whether work-related or home-related) is not related to propensity to leave public accounting.

The purpose of this hypothesis is to examine the relationships between work-related stressors, home-related stressors, and propensity to leave public accounting. The testing of this hypothesis involved the non-turnover group only. The determination of the scores for the work-related stressors and the home-related stressors is discussed under Hypothesis 1. The score for the variable of propensity to leave public accounting was determined as follows:

4.4.3.1 Propensity to Leave Public Accounting

The scale for propensity to leave public accounting consisted of two questions, answered on a scale of 1 to 6. The score was obtained by averaging the responses to the two questions. Scores were determined for only those respondents who answered both questions. The two questions used are questions #1 and #2 in Section VI of the non-turnover questionnaire.

4.4.3.2 Results of Statistical Tests

The relationships were tested using Pearson Product Moment Correlations. Table 15 presents the correlation coefficients for the work-related and home-related stressors, along with the associated probability values. All of the correlations were statistically significant at the .0001 level.

Table 15. Correlation Coefficients for Hypothesis 3: Relationship Between Each Stressor and Propensity to Leave Public Accounting

Stressor	Correlation Coefficients	Probability Value
Job scope	.37	.0001
Career progress	.36	.0001
Conflict with family roles	.30	.0001
Conflict with leisure	.29	.0001
Role conflict	.28	.0001
Role ambiguity	.24	.0001
Qualitative overload	.22	.0001
Time pressure	.22	.0001
Quantitative overload	.20	.0001
Responsibility for people	.16	.0001

The four stressors that correlated most highly with propensity to leave public accounting were the two stressors most highly correlated with job dissatisfaction (job scope and career progress) and the two stressors most highly correlated with job-related tension (conflict with family roles and conflict with leisure).

4.4.4 HYPOTHESIS 4: Each stressor (whether work-related or home-related) is not related to turnover.

The purpose of this hypothesis is to examine the relationships between work-related stressors, home-related stressors, and turnover. The testing of this hypothesis involved data from both the non-turnover and the turnover groups. The variables involved in testing this hypothesis are the work-related stressors (for both the non-turnover and the turnover group), the home-related stressors (for both groups) and non-turnover vs. turnover status.

4.4.4.1 *Work-Related Stressors*

Determination of work-related stressors for the non-turnover group is discussed under Hypothesis 1. Scores for the turnover group were determined in a similar way. The items used to determine the scores for the work-related stressors are located in Section I for both the non-turnover and the turnover questionnaires.

4.4.4.2 Home-Related Stressors

Determination of home-related stressors for the non-turnover group is discussed under Hypothesis 1. Scores for the turnover group were determined in a similar manner. The items used to determine the scores for the home-related stressors are located in Section III of the non-turnover questionnaire and in Section V of the turnover questionnaire. Within these sections, the question numbers are the same.

4.4.4.3 Results of Statistical Tests

The differences in the means between the non-turnover and the turnover groups were tested using one-way analysis of variance. Table 16 presents the mean scores of each stressor for the non-turnover group (average sample size = 1,003) and the turnover group (average sample size = 186). Table 16 also shows the F values and associated probability values for each stressor. The table is arranged in descending order of F values. All of the differences in the means, with the exception of quantitative overload, were statistically significant at the .05 level or less.

With the exception of two stressors (responsibility for people and quantitative overload) the means for the turnover group were significantly higher than the means for the non-turnover group. The greatest differences in means occurred for three of the work-related stressors: job scope, qualitative overload, and career progress. These stressors relate to individuals' perceptions of their role in the organization, specifically the importance of their job, qualifications for the position, and future advancement opportunities. The third highest difference in means was for a home-related stressor, conflict with leisure.

Table 16. Means and F Values for Hypothesis 4: Relationship Between Each Stressor and Nonturnover/Turnover

STRESSOR	MEANS		F VALUE	P VALUE
	NON-TURNOVER	TURNOVER		
Job Scope	3.01	3.52	43.55	.0001
Qualitative Overload	2.43	2.86	35.77	.0001
Conflict with Leisure	4.08	4.52	27.76	.0001
Career Progress	2.79	3.32	25.10	.0001
Time Pressure	4.48	4.82	10.46	.0013
Role Conflict	3.11	3.34	8.14	.0044
Role Ambiguity	3.17	3.41	6.89	.0088
Conflict with Family Roles	4.20	4.43	5.09	.0243
Responsibility for People	2.92	2.74	4.19	.0410
Quantitative Overload	3.57	3.43	2.38	.1232

4.4.5 HYPOTHESIS 5: Job-related tension is not related to job dissatisfaction.

The purpose of this hypothesis is to examine the relationship between job-related tension and job dissatisfaction. The testing of this hypothesis involved the non-turnover group only. The variables involved in testing this hypothesis are job-related tension and job dissatisfaction. Determination of the score for job-related tension is discussed under Hypothesis 1. Determination of the score for job dissatisfaction is discussed under Hypothesis 2.

4.4.5.1 Results of Statistical Tests

The relationship between job-related tension and job dissatisfaction was tested using a Pearson Product Moment Correlation, which showed a positive correlation between the two variables of .35 ($p < .0001$).

4.4.6 HYPOTHESIS 6: Job-related tension is not related to propensity to leave public accounting.

This hypothesis examines the relationship between job-related tension and propensity to leave public accounting. The testing of this hypothesis involved the non-turnover group only. The variables involved in testing this hypothesis are job-related tension and propensity to leave public accounting. See the discussion

under Hypothesis 1 and Hypothesis 3 for descriptions of the scoring of these variables.

4.4.6.1 Results of Statistical Tests

The relationship between job-related tension and propensity to leave public accounting was tested using a Pearson Product Moment Correlation, which indicated a correlation of .32 ($p < .0001$).

4.4.7 HYPOTHESIS 7: Job-related tension is not related to turnover.

The purpose of this hypothesis is to test whether there is a difference in the level of job-related tension between the non-turnover and the turnover groups. Thus, data from both groups were used. The testing of this hypothesis involved two variables, job-related tension and non-turnover/turnover. The discussion under Hypothesis 1 describes the scoring for job-related tension. The classification of non-turnover/turnover depends on the sample the individual is from, i.e., the non-turnover or turnover group.

4.4.7.1 Results of Statistical Tests

The mean score for job-related tension was 3.00 for the non-turnover group and 3.07 for the turnover group. A one-way Analysis of Variance (ANOVA) procedure was performed to test whether the two means were statistically different. This test

produced an F ratio of 1.23, $p = 0.27$. Therefore, the null hypothesis, that job-related tension is not related to turnover, could not be rejected.

4.4.8 HYPOTHESIS 8: Job dissatisfaction is not related to propensity to leave public accounting.

The purpose of this hypothesis is to examine the relationship between job dissatisfaction and propensity to leave public accounting. The test was applied to data from the non-turnover group only. The variables used in testing this hypothesis are job dissatisfaction and propensity to leave public accounting. The discussion of Hypothesis 2 describes the determination of the score for job dissatisfaction. The scoring for propensity to leave public accounting is described in the discussion of Hypothesis 3.

4.4.8.1 Results of Statistical Tests

The relationship between the two variables (job dissatisfaction and propensity to leave public accounting) was tested using a Pearson Product Moment Correlation, which showed a positive correlation of .54 ($p < .0001$).

4.4.9 HYPOTHESIS 9: There are no significant differences between females and males in the hypothesized relationships (Hypothesis 1 through Hypothesis 8).

This hypothesis examines the moderating effect of gender on the hypothesized relationships. To test the moderating effect of gender on Hypotheses 1, 2, 3, 5, 6, and 8, data was obtained from the non-turnover sample only. To test the moderating effect on Hypotheses 4 and 7, data were obtained from both the non-turnover and the turnover groups. Gender was determined by the answer to demographic question #1 (in Section VII of the non-turnover questionnaire and in Section VI of the turnover questionnaire).

4.4.9.1 Results of Statistical Tests

For those hypotheses that were tested using correlation (those involving the non-turnover group only – H1, H2, H3, H5, H6, and H8), a statistical test was performed to determine if the correlations for males and the correlations for females were statistically different. A copy of the computer-adapted version of this test is included in the appendices.

For those hypotheses that were tested with one-way ANOVA (those involving both the non-turnover and the turnover groups – H4 and 7), a two-way analysis of variance procedure was used to investigate the moderating effect of gender.

Table 17 contains a comparison by gender of the means of the variables examined in the study: the eight work-related stressors, the two home-related stressors, job-related tension, job dissatisfaction, and propensity to leave public

accounting. The means are presented for the non-turnover group, the turnover group, and the two groups combined.

Tables 18 through 21 provide the results of the statistical procedures performed to test the moderating effect of gender on those hypotheses tested with correlation (Hypotheses 1, 2, 3, 5, 6 and 8).

Table 18 contains the results of testing the moderating effect of gender on Hypothesis 1 (the relationship between stressors and job-related tension). There was a statistically significant difference in the correlations of males and females for one work-related stressor, role conflict, and for the home-related stressor, conflict with family roles. There was a higher correlation between these stressors and job-related tension for females than for males.

Table 19 contains the results of testing the moderating effect of gender on Hypothesis 2 (the relationship between stressors and job dissatisfaction). The correlations for males and for females were statistically different for two work-related stressors (quantitative overload and time pressure). The correlations between these stressors and job dissatisfaction were higher for females than for males.

Table 20 contains the results of testing the moderating effect of gender on Hypothesis 3 (the relationship between stressors and propensity to leave public accounting). The correlations of males and females were not statistically different for any of the home-related stressors but were statistically different for two work-related stressors, role ambiguity and career progress. The correlations between these stressors and propensity to leave public accounting were higher for males than for females.

Table 21 contains the results of testing the moderating effect of gender on Hypotheses 5, 6, and 8. Gender was not a statistically significant moderator for Hypothesis 5 (relationship between job-related tension and job dissatisfaction) or for

Table 17. Comparison of Mean Scores of Variables -- By Gender

VARIABLE	MEANS NONTURNOVER (N = 1011)		MEANS TURNOVER (N = 191)		MEANS BOTH GROUPS (N = 1201)	
	Male	Female	Male	Female	Male	Female
WORK-RELATED STRESSORS (7-point scale)						
Role Ambiguity	3.16	3.20	3.43	3.37	3.20	3.23
Role Conflict	3.09	3.14	3.31	3.39	3.12	3.19
Quantitative Overload	3.56	3.57	3.41	3.46	3.54	3.55
Qualitative Overload	2.41	2.47	2.82	2.93	2.47	2.55
Career Progress	2.78	2.81	3.26	3.40	2.85	2.92
Responsibility for People	2.91	2.93	2.70	2.81	2.88	2.91
Time Pressure	4.49	4.46	4.77	4.89	4.53	4.54
Job Scope	3.02	2.99	3.51	3.53	3.09	3.09
HOME-RELATED STRESSORS (6-point scale)						
Conflict with Leisure	3.99	4.28	4.36	4.76	4.04	4.37
Conflict with Family	4.18	4.23	4.32	4.64	4.20	4.30
JOB-RELATED TENSION (5-point scale)						
	2.93	3.14	2.96	3.22	2.94	3.16
JOB DISSATISFACTION (5-point scale)						
	2.18	2.24	na	na	na	na
PROPENSITY TO LEAVE PUBLIC ACCOUNTING (6-point scale)						
	3.37	3.34	na	na	na	na
na = not applicable						

Table 18. Moderating Effect of Gender on Hypotheses 1: Relationship between Stressors and Job-Related Tension

STRESSORS	CORRELATIONS¹		DIFFERENCE IN CORRELATIONS P VALUE
	Male	Female	
WORK-RELATED			
Role Ambiguity	.41	.43	.78
Role Conflict	.45	.55	.04
Quantitative Overload	.48	.47	.81
Qualitative Overload	.44	.43	.73
Career Progress	.36	.30	.38
Responsibility for People	.42	.45	.58
Time Pressure	.51	.56	.34
Job Scope	.42	.41	.92
HOME-RELATED			
Conflict with Leisure	.66	.72	.07
Conflict with Family	.49	.60	.04

¹All correlations are significant at the .0001 level.

Table 19. Moderating Effect of Gender on Hypotheses 2: Relationship between Stressors and Job Dissatisfaction

STRESSORS	CORRELATIONS¹		DIFFERENCE IN CORRELATIONS P VALUE
	Male	Female	
WORK-RELATED			
Role Ambiguity	.46	.40	.29
Role Conflict	.37	.41	.50
Quantitative Overload	.11	.26	.02
Qualitative Overload	.28	.32	.53
Career Progress	.60	.56	.31
Responsibility for People	.21	.30	.17
Time Pressure	.15	.32	.005
Job Scope	.52	.60	.12
HOME-RELATED			
Conflict with Leisure	.24	.27	.60
Conflict with Family	.17	.30	.08

¹All correlations are significant at the .006 level.

Table 20. Moderating Effect of Gender on Hypotheses 3: Relationship between Stressors and Propensity to Leave

STRESSORS	CORRELATIONS¹		DIFFERENCE IN CORRELATIONS P VALUE
	Male	Female	
WORK-RELATED			
Role Ambiguity	.29	.15	.04
Role Conflict	.30	.25	.46
Quantitative Overload	.20	.20	.97
Qualitative Overload	.24	.19	.40
Career Progress	.43	.24	.002
Responsibility for People	.18	.13	.39
Time Pressure	.21	.24	.59
Job Scope	.40	.31	.11
HOME-RELATED			
Conflict with Leisure	.30	.29	.90
Conflict with Family	.29	.33	.60

¹All correlations are significant at the .02 level.

Hypothesis 6 (relationship between job-related tension and propensity to leave public accounting). Gender was, however, a statistically significant moderator for Hypothesis 8 (relationship between job dissatisfaction and propensity to leave public accounting). The correlation between job dissatisfaction and propensity to leave was higher for males than for females.

Table 22 contains the results of the two-way analysis of variance procedures used to test the moderating effect of gender on Hypothesis 4 (relationship between the stressors and turnover) and Hypothesis 7 (relationship of job-related tension to turnover).

The results for Hypothesis 4 indicated no significant interaction between overall sample effects and gender for any of the stressors. There was a significant main effect for gender for the home-related stressor, conflict with leisure. The following chart shows the means for this variable, conflict with leisure, for males and females.

Sample	Conflict with Leisure	
	Males	Females
Non-turnover group	3.99	4.28
Turnover group	4.36	4.76
Both groups combined	4.04	4.37

The means for this variable were significantly higher for females than for males.

The results for Hypothesis 7 indicated no significant interaction between the overall sample effect and gender. There was a significant main effect for gender, however. The following chart shows the means for the variable, job-related tension, for males and females.

Table 21. Moderating Effect of Gender on Hypotheses 5, 6, and 8

HYPOTHESIS		CORRELATIONS¹	
		Male	Female
H5:	Job-Related Tension is not related to Job Dissatisfaction	.35	.34
H6:	Job-Related Tension is not related to Propensity to Leave Public Accounting	.33	.32
H8:	Job Dissatisfaction is not related to Propensity to Leave Public Accounting	.58	.47 *

¹All correlations are significant at the .0001 level.

* Difference in correlations is significant at the .03 level.

Table 22. Moderating Effect of Gender on Hypotheses 4 and 7

H4: Each Stressor is not related to Turnover (Tested by 2-Way ANOVA)	Overall Sample		Gender		Sample*Gender	
	F Value	P Value	F Value	P Value	F Value	P Value
WORK-RELATED STRESSORS						
Role Ambiguity	5.76	.02	.03	.86	.32	.57
Role Conflict	7.63	.006	.58	.45	.06	.81
Quantitative Overload	2.03	.15	.09	.76	.05	.82
Qualitative Overload	33.85	.0001	1.18	.28	.09	.77
Career Progress	24.58	.000	.61	.43	.28	.60
Responsibility for People	3.69	.06	.65	.42	.23	.63
Time Pressure	11.14	.0009	.15	.70	.48	.49
Job Scope	42.73	.0001	.00	.95	.15	.69
HOME-RELATED STRESSORS						
Conflict with Leisure	25.13	.0001	16.90	.0001	.40	.53
Conflict with Family Roles	6.27	.01	2.81	.09	1.50	.22
H7: Job-Related Tension is not related to Turnover (Tested by 2-Way ANOVA)	.81	.37	15.25	.0001	.20	.65

Sample	Job-Related Tension	
	Males	Females
Non-turnover group	2.93	3.14
Turnover group	2.96	3.22
Both groups combined	2.94	3.16

Females reported higher levels of job-related tension than males.

Overall, tests of the moderating effect of gender on the hypothesized relationships indicated the following: there was a significantly higher correlation for females than for males between job-related tension and the stressors, role conflict, and conflict with family roles, and between job dissatisfaction and the stressors, quantitative overload and time pressure. There was a significantly higher correlation for males than for females between propensity to leave public accounting and the stressors, role ambiguity and career progress, and between job dissatisfaction and propensity to leave public accounting. Additionally, females in both the turnover and the non-turnover groups reported higher levels of conflict with leisure, conflict with family roles, and job-related tension.

4.4.10 HYPOTHESIS 10: There are no significant differences in the hypothesized relationships (H1 through H8) among the various family types.

The purpose of this hypothesis is to examine the moderating effect of family type on the hypothesized relationships. The hypothesis was tested in a manner similar to hypothesis 9, using family type as a moderator rather than gender. A code for family

type was developed based on the responses to the following questions in the demographic section of the questionnaires: Question #2 (marital status), question #3 (number of children), and question #7 (employment status of spouse). Individuals were classified into one of the following family types: (a) single, (b) traditional family, (c) dual career couple no children, (d) dual career couple with children, or (e) single with children.

4.4.10.1 Results of Statistical Tests

For those hypotheses that used correlations (H1, H2, H3, H5, and H6, and H8), a test similar to that used in testing hypothesis 9 was performed to see if the correlations between the various family types differed statistically. The details of this test, used to compare the five correlation coefficients, are contained in the appendix. For those hypotheses that were tested with one-way ANOVA (H4 and H7), a two-way analysis of variance procedure was used.

Based on the results of these tests, family type (as now defined) was not found to be a significant moderator in the hypothesized relationships (Hypothesis 1 through 8).

4.4.11 HYPOTHESIS 11: There are no significant differences between Type A individuals and Type B individuals in the hypothesized relationships (H1 through H8).

This hypothesis examines the moderating effect of personality type on the hypothesized relationships. To test the moderating effect of personality type on Hypotheses 1, 2, 3, 5, 6, and 8, data were obtained from the non-turnover sample only. To test the moderating effect on Hypotheses 4 and 7, data were obtained from both the non-turnover and the turnover groups. Individuals were classified as Type A, Type B, or Type X (persons displaying a combination of Type A and B behavior). Type X individuals, once identified, were excluded from tests of this hypothesis.

Individuals were classified as Type A, B, or X by adding the scores of the responses (on a 7-point scale) to the 21 questions in Section III of the questionnaires. The individual was classified into one of three groups based on the total score for the 21 items.¹⁴⁰ If the score was below 82, the individual was classified as Type B. If the score was between 82 and 87 the individual was classified as Type X (and thus excluded from the test). If the score was above 87, the individual was classified as Type A.

4.4.11.1 Results of Statistical Tests

This hypothesis was tested in a manner similar to Hypothesis 9 (the moderating effect of gender). For those hypotheses that were tested using correlation – H1, H2,

¹⁴⁰ The classification scheme used is the one suggested by the authors of the Personality Type scale used, *Op. Cit.*, Matteson and Ivancevich, 1982.

H3, H5, H6, and H8), a test was performed to determine if the correlations for Type A individuals and the correlations for Type B individuals were statistically different.

For those hypotheses that were tested with one-way ANOVA (H4 and H7), a two-way analysis of variance procedure was used to investigate the moderating effect of personality type.

Table 23 contains a comparison by personality type of the means of the variables examined in the study: the eight work-related stressors, the two home-related stressors, job-related tension, job dissatisfaction, and propensity to leave public accounting. The means are presented for the non-turnover group, the turnover group, and the two groups combined.

Tables 24 through 27 provide the results of the statistical procedures performed to test the moderating effect of personality type on those hypotheses tested with correlation (Hypotheses 1, 2, 3, 5, 6 and 8).

Table 24 contains the results of testing the moderating effect of personality type on Hypothesis 1 (the relationship between stressors and job-related tension). There was a statistically significant difference in the correlations of Type A and Type B individuals for the home-related stressor, conflict with leisure. There was a higher correlation between this stressor and job-related tension for Type B individuals than for Type As.

Table 25 contains the results of testing the moderating effect of personality type on Hypothesis 2 (the relationship between stressors and job dissatisfaction). The correlations for Type As and for Type Bs were statistically different for two work-related stressors (role ambiguity and job scope). The correlations between these stressors and job dissatisfaction were higher for Type Bs than for Type As.

Table 26 presents the results of testing the moderating effect of personality type on Hypothesis 3 (the relationship between stressors and propensity to leave public

Table 23. Comparison of Mean Scores of Variables -- By Personality Type

VARIABLE	MEANS NONTURNOVER (N = 1011)		MEANS TURNOVER (N = 191)		MEANS BOTH GROUPS (N = 1202)	
	Type A	Type B	Type A	Type B	Type A	Type B
WORK-RELATED STRESSORS (7-point scale)						
Role Ambiguity	3.22	3.05	3.23	3.73	3.22	3.15
Role Conflict	3.25	2.93	3.34	3.38	3.27	3.00
Quantitative Overload	3.74	3.25	3.67	3.14	3.73	3.23
Qualitative Overload	2.51	2.32	2.75	2.96	2.55	2.42
Career Progress	2.81	2.74	3.15	3.50	2.87	2.86
Responsibility for People	3.07	2.70	2.95	2.58	3.05	2.68
Time Pressure	4.72	4.16	5.08	4.37	4.78	4.19
Job Scope	3.04	2.98	3.31	3.76	3.08	3.10
HOME-RELATED STRESSORS (6-point scale)						
Conflict with Leisure	4.32	3.74	4.72	4.18	4.39	3.81
Conflict with Family	4.44	3.78	4.68	3.97	4.48	3.81
JOB-RELATED TENSION (5-point scale)						
	3.12	2.82	3.15	2.88	3.12	2.83
JOB DISSATISFACTION (5-point scale)						
	2.12	2.26	na	na	na	na
PROPENSITY TO LEAVE PUBLIC ACCOUNTING (6-point scale)						
	3.26	3.41	na	na	na	na
na = not applicable						

Table 24. Moderating Effect of Personality Type on Hypotheses 1: Relationship between Stressors and Job-Related Tension

STRESSORS	CORRELATIONS¹		DIFFERENCE IN CORRELATIONS P VALUE
	Type A	Type B	
WORK-RELATED			
Role Ambiguity	.44	.41	.64
Role Conflict	.48	.49	.81
Quantitative Overload	.42	.48	.32
Qualitative Overload	.43	.41	.76
Career Progress	.35	.30	.42
Responsibility for People	.40	.45	.35
Time Pressure	.50	.55	.35
Job Scope	.41	.44	.56
HOME-RELATED			
Conflict with Leisure	.64	.76	.002
Conflict with Family	.47	.59	.06

¹All correlations are significant at the .0001 level.

Table 25. Moderating Effect of Personality Type on Hypotheses 2: Relationship between Stressors and Job Dissatisfaction

STRESSORS	CORRELATIONS ¹		DIFFERENCE IN CORRELATIONS P VALUE
	Type A	Type B	
WORK-RELATED			
Role Ambiguity	.39	.52	.02
Role Conflict	.39	.40	.86
Quantitative Overload	.19	.22	.67
Qualitative Overload	.28	.34	.34
Career Progress	.57	.60	.55
Responsibility for People	.27	.31	.52
Time Pressure	.25	.29	.49
Job Scope	.50	.62	.02
HOME-RELATED			
Conflict with Leisure	.26	.34	.18
Conflict with Family	.20	.30	.21

¹All correlations are significant at the .0001 level.

accounting). Only one set of correlations was statistically different. The correlations between the stressor, career progress, and propensity to leave public accounting was higher for Type As than for Type Bs.

Table 27 presents the results of testing the moderating effect of personality type on Hypotheses 5, 6, and 8. Personality type was not a statistically significant moderator for Hypothesis 5 (relationship between job-related tension and job dissatisfaction), Hypothesis 6 (relationship between job-related tension and propensity to leave public accounting), or Hypothesis 8 (relationship between job dissatisfaction and propensity to leave public accounting).

Table 28 presents the results of the two-way analysis of variance procedures used to test the moderating effect of personality type on Hypothesis 4 (relationship between the stressors and turnover) and Hypothesis 7 (relationship of job-related tension to turnover).

The results for Hypothesis 4 indicated a significant interaction between overall sample effects and personality type for four of the work-related stressors (role ambiguity, role conflict, qualitative overload, and job scope).

The following are the cell means (by personality Type A or B) related to these stressors:

Stressor	Type A Means		Type B Means	
	Non-turnover	Turnover	Non-turnover	Turnover
Role Ambiguity	3.22	3.23	3.05	3.73
Role Conflict	3.25	3.34	2.93	3.38
Qualitative Overload	2.51	2.74	2.32	2.96
Job Scope	3.04	3.31	2.98	3.76

Table 26. Moderating Effect of Personality Type on Hypotheses 3: Relationship between Stressors and Propensity to Leave

STRESSORS	CORRELATIONS ¹		DIFFERENCE IN CORRELATIONS P VALUE
	Type A	Type B	
WORK-RELATED			
Role Ambiguity	.23	.23	.98
Role Conflict	.28	.28	.95
Quantitative Overload	.19	.22	.67
Qualitative Overload	.26	.18	.25
Career Progress	.41	.29	.05
Responsibility for People	.14	.21	.33
Time Pressure	.25	.24	.79
Job Scope	.37	.40	.60
HOME-RELATED			
Conflict with Leisure	.29	.34	.46
Conflict with Family	.29	.35	.46

¹All correlations are significant at the .003 level.

Table 27. Moderating Effect of Personality Type on Hypotheses 5, 6, and 8

HYPOTHESES		CORRELATIONS¹	
		Type A	Type B
H5:	Job-Related Tension is not related to Job Dissatisfaction	.34	.40
H6:	Job-Related Tension is not related to Propensity to Leave Public Accounting	.30	.37
H8:	Job Dissatisfaction is not related to Propensity to Leave Public Accounting	.52	.55

¹All correlations are significant at the .0001 level.

None of the differences in correlations are statistically significant.

Table 28. Moderating Effect of Personality Type on Hypotheses 4 and 7

	Overall Sample		Personality Type		Personality Type * Sample	
	F Value	P Value	F Value	P Value	F Value	P Value
H4: Each Stressor is not related to Turnover (Tested by 2-Way ANOVA)						
WORK-RELATED STRESSORS						
Role Ambiguity	11.48	.0007	2.62	.11	10.96	.001
Role Conflict	7.87	.005	2.09	.15	3.73	.05
Quantitative Overload	.92	.34	27.07	.0001	.05	.83
Qualitative Overload	27.06	.0001	.02	.90	5.69	.02
Career Progress	21.04	.0001	1.24	.27	3.03	.08
Responsibility for People	1.50	.22	15.49	.0001	0.00	.98
Time Pressure	5.92	.02	30.00	.0001	.40	.53
Job Scope	37.43	.0001	5.00	.03	8.73	.003
HOME-RELATED STRESSORS						
Conflict with Leisure	19.69	.0001	35.39	.0001	.03	.89
Conflict with Family Roles	3.37	.07	33.37	.0001	.05	.82
H7: Job-Related Tension is not related to Turnover (Tested by 2-Way ANOVA)	.37	.54	18.29	.0001	.04	.85

For the Type A individuals, the means for the turnover group were all higher than the means for the non-turnover group. This was also true for the Type B individuals, but for Type Bs there was a greater difference in means between the turnover and non-turnover groups.

The results for Hypothesis 7 indicated no significant interaction between the overall sample effect and personality type. There was a significant main effect for personality type, however. The following shows the means for the variable, job-related tension, for Type A and Type B individuals.

Sample	Job-Related Tension	
	Type As	Type Bs
Non-turnover group	3.12	2.82
Turnover group	3.15	2.88
Both groups combined	3.12	2.83

Type A individuals reported higher levels of job-related tension than Type B individuals.

Overall, tests of the moderating effect of personality type on the hypothesized relationships indicate the following: There was a significantly higher correlation for Type Bs than for Type As between job-related tension and the home-related stressor, conflict with leisure, and between job dissatisfaction and two work-related stressors, role ambiguity and job scope. There was a statistically higher correlation for Type As than for Type Bs between propensity to leave public accounting and the stressor, career progress. Type As also reported higher job-related tension than did Type Bs.

Additionally, while the turnover group Type A individuals reported higher levels on four work-related stressors (role ambiguity, role conflict, qualitative overload, and job scope) than the non-turnover group Type A individuals, the reported differences

in these stressors between the turnover and non-turnover groups were even greater for Type B individuals.

4.5 COMPARISON OF POSITIONS

The turnover questionnaire included twelve questions asking participants to compare (on a six-point scale) their present positions with their past public accounting positions. Table 29 reports these twelve questions along with the mean responses and associated standard deviations.

4.6 TEST FOR NON-RESPONSE BIAS

As questionnaires were returned, the date of receipt was marked on the questionnaire. This date was used to separate those responding after the second mailing (the late respondents) from those responding prior to this second mailing (the early respondents). Following procedures similar to those used to test the moderating effect of personal characteristics on the hypothesized relationships,¹⁴¹ the responses to the first mailing were compared to the responses to the second mailing.

¹⁴¹ To test the moderating effect of response time (early respondents, late respondents) on Hypotheses 1, 2, 3, 5, 6, and 8, data were obtained from the non-turnover sample only. To test the moderating effect on Hypotheses 4 and 7, data were obtained from both the non-turnover and the turnover groups. For those hypotheses that were tested using correlation (hypotheses 1, 2, 3, 5, 6, and 8) a statistical test was performed to determine if the correlations for early respondents and the correlations for late respondents were statistically different. For those hypotheses that were tested with one-way ANOVA (H4 and H7), a two-way analysis of variance procedure was used to investigate the moderating effect of response time.

Table 29. Comparisons of Present Non-Public Accounting Position with Past Public Accounting Position

COMPARISON OF PRESENT POSITION WITH PAST POSITION	MEAN	S.D.
1. The WORKLOAD for my present position IS LESS than the workload for my last public accounting position.	3.99	1.66
2. I am BETTER QUALIFIED for my present position than I was for my last public accounting position.	3.24	1.41
3. TIME PRESSURES in my present position ARE LESS than time pressures in my last public accounting position.	4.35	1.72
4. The NUMBER OF CONFLICTING DEMANDS in my present position IS LESS than the number of conflicting demands in my last public accounting position.	4.05	1.65
5. I have a CLEARER UNDERSTANDING OF WHAT IS EXPECTED OF ME in my present position than I did in my last public accounting position.	3.59	1.40
6. OPPORTUNITIES FOR ADVANCEMENT in my present position ARE GREATER than opportunities for advancement in my last public accounting position.	3.83	1.55
7. I have LESS RESPONSIBILITY FOR OTHER EMPLOYEES in my present position than I did in my last public accounting position.	3.23	1.77
8. THE VARIETY OF WORK OFFERED by my present position IS GREATER than the variety of work offered by my last public accounting position.	3.82	1.58
9. My present position is MORE COMPATIBLE WITH MY FAMILY LIFE than my last public accounting position was with my family life.	4.75	1.31
10. The JOB-RELATED TENSION associated with my present position IS LESS than the job-related tension associated with my last public accounting position.	4.39	1.53
11. The JOB SATISFACTION associated with my present position IS GREATER than the job satisfaction association with my last public accounting position.	4.34	1.45
12. The FINANCIAL REWARDS (salary, employee benefits, etc.) of my present position ARE GREATER than the financial rewards of my last public accounting position.	4.82	1.45

¹Comparisons were made on a scale of 1 "strongly disagree" to 6 "strongly agree."

The rationale for this procedure was that respondents to the second mailing may not have responded at all had there been no second mailing. Hence these late respondents may be similar to the non-respondents and a comparison of the two groups could yield evidence of a non-response bias. At the .05 level, only one of the comparisons was significant, suggesting that no significant differences existed between those responding and those not responding. Consequently, there is no evidence of a non-response bias.

4.7 CONCLUSION

The results of the survey have been presented in this chapter, including the response, characteristics of the samples, descriptive statistics, statistical results of the hypotheses tested, and the test for non-response bias. The fifth and final chapter contains an analysis of the results and a discussion of their implications.

Chapter 5

DISCUSSION OF RESEARCH RESULTS, IMPLICATIONS, AND LIMITATIONS

The purpose of this study was to address the following research questions:

1. What environmental factors (both work-related and home-related) contribute to stress at the middle-management level in public accounting?
2. What are the consequences of this stress?
3. Are the consequences of stress modified by the personal characteristics of the individual?

To address these issues, several hypotheses were proposed. Chapter 4 contained a presentation of the results of statistically testing these hypotheses. This chapter includes an analysis of these results and a discussion of their implications. Then, the findings from this study are compared with findings from past non-accounting and accounting studies.

5.1 ENVIRONMENTAL FACTORS CONTRIBUTING TO STRESS

Individuals in middle-management positions play a pivotal role in public accounting. They report to partners, and maintain close contact with clients, often serving as the primary interface between the client and the firm. They also maintain close contact with junior staff members and thus are crucial to the development of personnel within the firm. As a result, however, their position is potentially stressful, with possible dysfunctional consequences to the individual and the organization. Given the importance of these individuals to the public accounting profession, it is important to gain an understanding of the stressors they encounter.

Individuals in this study currently holding middle-management public accounting positions¹⁴² are exposed to stress-related factors from both inside and outside the organization. The mean scores of these work-related and home-related stressors were presented in Table 11 (in Chapter 4). The top two stressors are both extrinsic factors: conflict with family roles and conflict between the job and leisure. The mean scores for these home-related stressors are 4.9 out of 7.0 for conflict with family roles and 4.8 out of 7.0 for conflict with leisure. These high mean scores are strong indications that being in public accounting can have a negative impact on home life. This negative impact may be attributed, at least in part, to the long work weeks and travel requirements of the profession. Individuals in the study report working an

¹⁴² Study participants in the non-turnover group have been employed in public accounting for at least three years, with an average tenure in the profession of five years, ten months. Forty-one percent of these individuals hold positions as seniors and 56% hold either manager or senior-manager positions. Position titles vary between firms – for example, a position with the title of senior in a Big-8 accounting firm might have the title of manager in a local firm.

average of 59 hours per week during busy season (which lasts an average of 16 weeks) and 44 hours per week during non-busy season. They spend an average of 20 nights per year out of town on work.

The greatest work-related sources of stress for middle-management accountants are time pressure (mean of 4.5 out of 7.0) and quantitative overload (mean of 3.6 out of 7.0). This is not surprising since public accounting firms earn revenue by billing clients for time worked by the firm's employees. Thus accounting firms have an incentive to encourage employees to work as many hours as possible. In addition, much of the work done by accountants must be finished within a specified period of time. Audits must be finished by certain dates, tax returns must be filed on time.

In summary, the environmental factors contributing to stress at this middle-management level in public accounting stem from two major sources:

1. The conflict between the work environment and the non-work environment, resulting in a lack of sufficient time for leisure and family activities.
2. A work environment that encourages employees to work as many hours as possible, particularly during busy season, and to strive to meet frequent deadlines.

5.2 CONSEQUENCES OF STRESS

Stress has potential negative consequences for the accounting organization. This stress can possibly increase job-related tension, job dissatisfaction, propensity

to leave and turnover. An important first step in reducing stress in public accounting is to gain a better understanding of the stressors encountered and the consequences of these stressors. This study examined ten possible sources of stress, eight work-related and two home-related. Four potential consequences of stress were investigated – job-related tension, job dissatisfaction, propensity to leave public accounting, and turnover.

Statistical tests were performed to examine the associations between each of the ten stressors and each outcome. The relationships between the stressors and job-related tension, job dissatisfaction, and propensity to leave public accounting were tested using Pearson's Product Moment correlation. The relationships between the stressors and turnover were tested using one-way analysis of variance.

The results of these statistical tests are presented in Table 30. All of the correlations are significant at the .0001 level. The associations between each stressor and turnover using one-way analysis of variance are significant at the .05 level with the exception of the quantitative-overload stressor. For comparative purposes, Table 30 indicates the four stressors most highly correlated with each outcome.

5.2.1 Job-Related Tension

The stressors most highly correlated with job-related tension are the home-related stressors (conflict with leisure and conflict with family) and two work-related stressors (time pressure and role conflict). The high correlations between the home-related stressors and job-related tension indicate that non-work factors are important contributors to job-related tension. The work-related stressors

Table 30. Relationship Between Each Stressor and Each Outcome

	<u>H: 1</u>		<u>H: 2</u>		<u>H: 3</u>		<u>H: 4</u>	
	<u>Four Highest</u>	<u>Corr. Coef.</u>	<u>Four Highest</u>	<u>Corr. Coef.</u>	<u>Four Highest</u>	<u>Corr. Coef.</u>	<u>Four Highest</u>	<u>F-Value</u>
Work-Related:								
Role Ambiguity		.42	3	.43		.24		6.89
Role Conflict	4	.49	4	.39		.28		8.14
Quantitative Overload		.47		.16		.20		2.38
Qualitative Overload		.44		.30		.22	2	35.77
Career Progress		.33	1	.58	2	.36	4	25.10
Responsibility for People		.43		.24		.16		4.19
Time Pressure	3	.53		.21		.22		10.46
Job Scope		.41	2	.55	1	.37	1	43.55
Home-Related:								
Conflict with Leisure	1	.69		.25	4	.29	3	27.76
Conflict with Family Roles	2	.53		.21	3	.30		5.09

HYPOTHESIS 1: RELATIONSHIPS OF STRESSORS TO JOB-RELATED TENSION

HYPOTHESIS 2: RELATIONSHIPS OF STRESSORS TO JOB DISSATISFACTION

HYPOTHESIS 3: RELATIONSHIPS OF STRESSORS TO PROPENSITY TO LEAVE PUBLIC ACCOUNTING

HYPOTHESIS 4: RELATIONSHIPS OF STRESSORS TO TURNOVER

which correlate highly with job-related tension are under the control of the organization. Individuals are frequently given hard-to-meet deadlines and are receiving conflicting requests.

5.2.2 Job Dissatisfaction

The stressors most highly correlated with job dissatisfaction are work-related factors: career progress, job scope, role ambiguity, and role conflict. Individuals are dissatisfied with their jobs because they perceive a lack of opportunity for advancement or find their jobs unfulfilling. They are also dissatisfied because they are unsure of what is expected of them or receive conflicting demands.

5.2.3 Propensity to Leave Public Accounting

A variety of factors may influence an individual's propensity to leave public accounting. The four most significant factors identified by this study are the two stressors most highly correlated with job dissatisfaction (job scope and career progress) and the two stressors most highly correlated with job-related tension (conflict with family roles and conflict with leisure). It appears that individuals who feel their jobs are unimportant or that advancement opportunities are limited are more likely to consider leaving public accounting. The desire to leave public accounting extends beyond factors directly associated with their jobs, however. The conflict between the work environment and the non-work environment also contributes to the desire to leave.

5.2.4 Turnover

Individuals in the study who had recently left public accounting positions¹⁴³ were compared with those who remained. The turnover group reported higher levels of stress on three work-related stressors (job scope, qualitative overload, and career progress) as well as one home-related stressor (conflict with leisure). The decision to leave public accounting was related to stressors from both inside and outside the organization. As was true with intention to leave public accounting, individuals who felt their jobs were unimportant or believed that their employing organizations lacked sufficient career advancement opportunities were more likely to leave public accounting. Those who left were more likely to feel unqualified for the positions they had held. In addition to these work-related factors, the impact of the job on home life, specifically the conflict with leisure activities, also entered into the desire to leave public accounting.

5.2.5 Relationships Between Consequences

Stressors may have an indirect effect on stress consequences through the impact of one stress consequence on another, for example, the impact of job dissatisfaction on intention to leave.

Statistical tests were performed to examine the association between each of the stress consequences. The relationships between job-related tension and two other

¹⁴³ Study participants in the turnover group were employed in public accounting for an average of four and a half years. Sixty-nine percent of these individuals held positions as seniors and 24% held either manager or senior manager positions. Most had left public accounting within the last eight months.

consequences, job dissatisfaction and intention to leave, were tested using Pearson's correlation, as was the relationship between job dissatisfaction and intention to leave. The association between job-related tension and turnover was investigated using one-way analysis of variance.

A statistically significant correlation was found between job-related tension and job dissatisfaction ($r = .35$) and between job-related tension and intention to leave ($r = .32$). The correlation between job dissatisfaction and intention to leave ($r = .54$) was, as expected, significant. The association between job-related tension and turnover was not significant, indicating that other factors enter into the actual decision of an individual to leave public accounting.

5.3 MODERATING EFFECT OF PERSONAL CHARACTERISTICS

Individual differences can moderate the relationships between the stressors and the stress outcomes, either intensifying or weakening the relationships. This study investigated the potential moderating effect of gender, family type, and personality type. Gender and family type were chosen as potential moderators because of the increasing number of females and members of dual-career families working in public accounting firms. Personality type was chosen as a potential moderator because of the importance attributed to this individual characteristic as a moderator in past stress studies.

5.3.1 Gender

Previous research has been inconclusive on the question of whether the causes of stress and its consequences are different for females in public accounting than for their male colleagues.¹⁴⁴ To examine this question, the study investigated the moderating effects of gender¹⁴⁵ on the eight hypothesized relationships. The results of these tests were presented in Chapter 4, Tables 17 through 22.

The correlation between the conflict-with-family stressor and job-related tension was statistically higher for females than for males, as was the correlation between the role-conflict stressor and job-related tension. Similarly, the correlation between the time-pressure stressor and job dissatisfaction was statistically higher for females than for males, as was the correlation between the quantitative-overload stressor and job dissatisfaction. Females reported higher levels of conflict with leisure as well as higher levels of job-related tension.

The correlation between the career-progress stressor and propensity to leave public accounting was statistically higher for males than for females, as was the correlation between the role-ambiguity stressor and propensity to leave public accounting. Also, the correlation between job dissatisfaction and propensity to leave public accounting was higher for males than for females.

The stressors correlating more highly with the stress consequences for females than for males fall into two, probably interrelated, categories:

¹⁴⁴ See *Op. cit.*, Gaertner and Ruhe, 1983, and *Op. cit.*, Pearson, Wescott and Seiler, 1985.

¹⁴⁵ Sixty-eight percent of those in the non-turnover sample are males, while 32% are females. In the turnover sample, 59% are males and 41% are females.

1. **Conflicts** – either from within the organization or between the work and non-work environments.
2. **Time Demands** – due to having too much work to do or because of the constant need to meet deadlines.

Women in middle-management public accounting positions receive pressure from both inside and outside the organization. In the process of meeting these often conflicting demands, they are left with little free time. This lack of free time compounds the problems associated with the heavy workload and time demands of the public accounting profession. Consequently, these women are likely to experience higher levels of job-related tension.

Males in middle-management public accounting positions are stressed not from a combination of home and work-related factors, but from factors directly associated with their positions in the organization. Males are more likely than females to leave public accounting because of job dissatisfaction. The primary factors creating this job dissatisfaction are uncertainty about what is expected of them in the organization and concerns about future advancement opportunities. Thus, males appear to be more influenced by success-related factors. If their present positions within public accounting do not offer opportunities for success, they are likely to go elsewhere.

In summary, the gender differences may be related to different pressures exerted on males and females by our culture. A female is encouraged to assume two conflicting roles, to be both a breadwinner and homemaker. Attempting to fulfill these roles simultaneously may place women under constant pressure. A male, on the other hand, is encouraged to be successful at all costs. This constant struggle to

be successful exerts pressure on males. Both of these societal pressures may result in dysfunctional consequences to both the individual and the organization.

5.3.2 Family Type

Stress and its consequences may be greater for individuals who are members of dual career families, particularly those with children, than for single individuals or individuals from traditional families.¹⁴⁶ To examine this possibility, the study investigated the potential moderating effect of family type on the eight hypothesized relationships. As indicated in Chapter 4, family type was not found to be a significant moderator in the hypothesized relationships.

5.3.3 Personality Type

Past stress studies have found personality type to be an important moderator in the relationships between sources of stress and stress consequences. This study investigated the moderating effect of personality type on the eight hypothesized relationships. The results of these tests appear in Tables 23 through 28 in Chapter 4.

¹⁴⁶ Individuals in this study were classified into five family types. The non-turnover sample was made up of individuals from the following family types: single (26%), traditional family (23%), dual-career couple with no children (29%), dual-career couple with children (20%), single with children (2%). The turnover group was made up of individuals from these family types: single (29%), traditional family (20%), dual career-couple with no children (32%), dual-career couple with children (16%), single with children (3%).

Type A individuals ¹⁴⁷ report higher levels of the following stressors: conflict with leisure, conflict with family roles, time pressure, quantitative overload, and responsibility for people. It can be inferred then that Type As perceive that they experience higher workloads, greater responsibilities, and more excessive time pressure. This work situation impacts negatively on their non-work activities. Type A individuals report higher levels of job-related tension than Type Bs. This does not, however, result in their being more dissatisfied with their jobs or being more likely to leave public accounting than their Type B colleagues. The decision of a Type A individual to leave public accounting is influenced by an assessment of career opportunities in the organization. This would indicate that Type A individuals tend to stay as long as they feel they are likely to move up in the organization, even when stressed by the public accounting environment.

Although Type B individuals report lower levels of job-related tension, there is a stronger link between conflict with leisure and job-related tension for Type Bs than for Type As. Type Bs become dissatisfied with their jobs when they do not know what is expected of them or their jobs lack variety. Being generally less aggressive than their Type A counterparts, Type Bs may not exert the necessary efforts to alter their jobs or to receive clarification of organizational expectations for them.

Type A individuals who have left public accounting vary little from Type As still in public accounting on the following work-related stressors: role ambiguity, job scope, qualitative overload, and role conflict. Type Bs who have left public accounting, however, vary greatly on these stressors from Type Bs still in public

¹⁴⁷ Study participants were classified as Type A, Type B, or Type X (exhibiting some Type A and some Type B characteristics). Type X individuals were not analyzed in the tests of the moderating effect of personality type. The non-turnover sample was classified as follows: 45% Type A, 32% Type B, and 23% Type X. The turnover sample was 49% Type A, 32% Type B, and 19% Type X.

accounting. Apparently, these stressors are much more influential in the turnover decisions of Type Bs than of Type As.

5.4 COMPARISON OF RESULTS WITH PAST STUDIES

This section first presents a comparison of the findings from this study with findings from past non-accounting studies using the same instruments. This comparison will provide insight into the similarities and contrasts between accounting and non-accounting environments. Then, the findings from this study will be compared with past accounting studies to assess the consistency of the present findings with prior research on stress in accounting.

5.4.1 Comparisons with Non-Accounting Studies Using the Same Instruments

The instruments used in this study have been shown to be reliable and valid in past studies. Table 31 compares the reliabilities for variables assessed in this study with reliabilities from past studies, showing that the reliabilities obtained in this study were at least as high as those obtained in past studies for 11 out of the 14 variables. A comparison of the findings of the present study with those of past studies using these instruments should provide insight into how the accounting environment differs from other environments studied.

Table 31. Comparison of Internal Reliability of Instruments from this Study with Prior Reported Reliabilities

VARIABLE	INTERNAL RELIABILITIES		
	NONTURNOVER SAMPLE	TURNOVER SAMPLE	FROM PRIOR STUDIES
Work-Related Stressors¹			
Role Ambiguity	.80	.81	.79
Role Conflict	.68	.71	.59
Quantitative Overload	.71	.67	.76
Qualitative Overload	.71	.70	.53
Career Progress	.81	.84	.62
Responsibility for People	.74	.75	.68
Time Pressure	.86	.84	.79
Job Scope	.62	.52	.71
Home-Related Stressors²			
Conflict with Leisure	.86	.82	.89
Conflict with Family Roles	.89	.88	.89
Job-Related Tension³			
Job Dissatisfaction ⁴	.90	na	.90
Propensity to Leave ⁵	.85	na	.83
Personality Type ⁶	.82	.82	.71

¹Ivancevich and Matteson, 1987.

²Kopelman, Greenhaus, and Connolly, 1983.

³Miles and Perreault, 1976.

⁴Bullock, 1952.

⁵Seashore, Lawler, Mivis, and Cammann, 1982.

⁶Matteson and Ivancevich, 1982.

na = not applicable

Table 32 compares the means for the eight work-related stressors from this study with means for these same stressors from a study of managers in other organizations by Ivancevich and Matteson.¹⁴⁸ Managers in both studies reported high levels of stress from similar factors. The level of reported stress from these factors is generally higher for middle managers in public accounting than for managers in other organizations, with accountants reporting a higher level of stress from six of the factors, an equal amount of stress from one factor, and a lower level of stress from only one factor. It would appear from this comparison that middle-management public accountants experience higher levels of stress than individuals holding management positions in other fields.

The interrole conflict scale of Kopelman, Greenhaus and Connolly¹⁴⁹ was split into two sections (conflict with leisure and conflict with family roles) for the purposes of this study. In addition, the range of the scale was changed from 5 points to 6 points. The following means were obtained from study participants: conflict with leisure, non-turnover group 4.08, turnover group 4.52; conflict with family roles, non-turnover group 4.20, turnover group 4.43. Kopelman administered this scale to a group of married graduate and undergraduate evening students who were employed full time. After converting the results to a 6-point scale, these students reported a mean of 3.60, which is considerably lower than that reported by the middle-management accountants in this study.

Miles and Perreault¹⁵⁰ administered the job-related tension scale used in this study to 195 managers, scientists and engineers. These individuals reported a mean score for job-related tension of 2.21. Comparing this to the reported means in this

¹⁴⁸ *Op. cit.*, Ivancevich and Matteson, 1987

¹⁴⁹ *Op. cit.*, Kopelman, Greenhaus and Connolly, 1983.

¹⁵⁰ *Op. cit.*, Miles and Perreault, 1976.

Table 32. Comparison of Means of Work-Related Stressors with Means from Ivancevich and Matteson Study

STRESSOR	Present Study (N = 1,011)		Ivancevich and Matteson Study (N = 142)	
	Rank	Mean	Rank	Mean
Time Pressure	1	4.5	1	4.1
Quantitative Overload	2	3.6	2	3.6
Role Ambiguity	3	3.2	6	2.3
Role Conflict	4	3.1	3	2.9
Job Scope	5	3.0	4	2.7
Responsibility for People	6	2.9	8	2.1
Career Progress	7	2.8	7	2.2
Qualitative Overload	8	2.4	5	2.6

study of 3.00 for the non-turnover group and 3.07 for the turnover group indicates that middle-management accountants experience higher levels of job-related tension than the individuals participating in the Miles and Perreault study.

Middle-management accountants appear to be about as satisfied with their jobs as individuals in other organizations. The reported mean for the job dissatisfaction scale used in this study was 2.2. This is very similar to findings of two studies using this same instrument. The first was a study by its developer, Bullock ¹⁹¹ who administered the scale to 100 employees in a single organization. These individuals (primarily young, female, and of limited education and work experience) reported a mean of 2.1. The second was a study by Miles and Petty.¹⁹² These researchers administered the instrument to 152 managers, scientists and engineers, and reported a similar mean of 2.15.

Mean scores from past studies using the Cammann instrument ¹⁹³ for measuring intention to leave were not available. Consequently, the findings for intention to leave public accounting from this study could not be compared with findings from past studies.

5.4.1.1 Summary

In summary, the middle-management public accountants in this study experience higher levels of stress from work-related factors, more interrole conflict,

¹⁹¹ *Op. cit.*, Bullock, 1952.

¹⁹² *Op. cit.*, Miles and Petty, 1977.

¹⁹³ *Op. cit.*, Seashore, Lawler, Mirvis, and Cammann, 1982.

and greater job-related tension than other individuals studied. They are, however, about as satisfied with their jobs as other individuals.

5.4.2 Comparisons with Past Accounting Studies

A comparison of the findings of the present study with those of past accounting studies aids in assessing the consistency of the present findings with prior stress research in accounting.

5.4.2.1 Consequences of Stress

Senatra ¹⁵⁴ investigated the relationships between two stressors (role conflict and role ambiguity) and three stress outcomes (job-related tension, job dissatisfaction, and propensity to leave public accounting) for 88 audit seniors. Study results indicated a positive correlation between role conflict and job-related tension ($r = .55$) and between role ambiguity and job dissatisfaction ($r = .46$). The expected relationships between role conflict/role ambiguity and desire to leave the firm were not found to be statistically significant.

The correlations found in the present study between role conflict and job-related tension ($r = .49$) and between role ambiguity and job dissatisfaction ($r = .43$) were similar to those reported by Senatra. In addition, the other relationships tested by Senatra (role conflict and job dissatisfaction, role ambiguity and job-related tension, and role conflict/role ambiguity and intention to leave) were found to be statistically

¹⁵⁴ *Op. cit.*, Senatra, 1980

significant in this study. The fact that this study found statistical significance in these relationships while Senatra's did not is likely related to sample size. Senatra's sample was considerably smaller than the sample used in the present study, decreasing his likelihood of finding statistical significance.

In a study of non-partners in an accounting firm, Bullen and Flamholtz found that job dissatisfaction and intention to leave were positively correlated ($r = .61$). A similar positive relationship between job dissatisfaction and intention to leave ($r = .54$) was found in this study.

Several past studies suggest that accountants experience conflict between work, leisure, and family roles. In a study by Earnest and Lampe¹⁵⁵ female respondents ranked leisure time as the most important reason they would consider leaving their firms. Male respondents ranked compensation as the most important, with leisure time a close second. Other studies have identified similar variables as important factors influencing turnover. Participants in a comprehensive study of turnover by Rhode, Sorensen, and Lawler¹⁵⁶ rated conflict with family and excessive work hours as the two most important reasons (out of 39) for leaving the firm. White¹⁵⁷ and Knapp¹⁵⁸ also found overtime and family pressure influenced the turnover decision. Istvan and Wollman¹⁵⁹ identified pressure from home as a significant variable in an individual's decision to leave public accounting.

Middle-management public accountants in the present study also experienced conflict among work, leisure, and family roles. The two stressors most highly

¹⁵⁵ *Op. cit.*, Earnest and Lampe, 1982.

¹⁵⁶ *Op. cit.*, Rhode, Sorensen, and Lawler, 1977.

¹⁵⁷ *Op. cit.*, White, 1973.

¹⁵⁸ *Op. cit.*, Knapp, 1980.

¹⁵⁹ *Op. cit.*, Istvan and Wollman, 1976.

correlated with intention to leave were job scope and career progress. These stressors were followed closely by the two home-related stressors: conflict with family roles and conflict with leisure.

Another similarity with past studies is that individuals in this study who had left their jobs did so due to a combination of work-related and home-related factors. The top two stressors were work-related (job scope and qualitative overload). The third was home-related, conflict with leisure. When these individuals were asked to compare their present non-public accounting positions with their past public accounting positions, the two factors receiving the most favorable comparisons were financial rewards and compatibility with family life.

5.4.2.2 Moderating Effect of Personal Characteristics

A study by Gaertner and Ruhe ¹⁶⁰ found that women in staff positions in public accounting experienced job-related stress similar to that experienced by males at the same job level. Pearson, Wescott, and Seiler ¹⁶¹ also found little difference in job-related stress for males and females with two exceptions. First, women preferred less overtime, and second, females were less able to release tension. A study by Earnest and Lampe ¹⁶² found, similarly, that women prefer less overtime, or stated differently, more leisure time. Participants in the Earnest and Lampe study ranked inadequate leisure time as the primary reason they would consider leaving their present positions.

¹⁶⁰ *Op. cit.*, Gaertner and Ruhe, 1983.

¹⁶¹ *Op. cit.*, Pearson, Wescott, and Seiler, 1985.

¹⁶² *Op. cit.*, Earnest and Lampe, 1982.

This study found little difference in stress between males and females in middle-management public accounting positions, with two important exceptions. First, males in middle-level public accounting positions are stressed due to uncertainty about what is expected of them and concerns about future advancement opportunities. Second, women in middle-level public accounting positions are stressed due to a combination of work-related and home-related factors. The combination of pressures from both inside and outside the organization leaves these women with little free time.

In a study investigating the determinants and consequences of stress in the auditing profession, Choo ¹⁶³ found a significant positive relationship between job stress and Type A personality. This study also found that Type A individuals were more stressed by the accounting environment than Type B's.

5.4.2.3 Summary

This study replicates many of the findings from past research on stress in accounting. It expands these past findings, however, in several important ways. First, because a large national sample of CPA's was used, the results of this study may be more generalizable than results of past studies, which generally limited their sample to one or two accounting firms. Second, this study is more comprehensive than past research in that it examines stressors from both inside and outside the organization. Past studies have generally concentrated on work-related factors only. Third, much has been learned through this study about the complex relationships between these stressors and various outcomes. Four possible outcomes (job-related

¹⁶³ *Op. cit.*, Choo, 1986.

tension, job dissatisfaction, propensity to leave public accounting, and turnover) were investigated rather than just one outcome, such as turnover. Finally, this study has expanded our knowledge about the potential moderating effects of gender and personality type on stress relationships, factors often omitted from past studies.

5.5 LIMITATIONS OF THE STUDY

There are several limitations which can affect a study of this type, including non-response bias, the use of a self-report instrument, and the cross-sectional nature of the study.

The survey method was chosen for this study because it permits wider geographical coverage of the population, allows respondents to complete the questionnaire at their own pace, and provides a sense of privacy to the respondents. A disadvantage of the survey method, however, is that it may result in a non-response bias. Statistical tests were performed comparing the early respondents to the late respondents to determine if there was evidence of a non-response bias in the research data. The results of these tests suggest that non-response was not a problem in this study, but as in all studies of this nature, this can never be conclusively shown.

The study used a self-report instrument. Possible limitations with a self-report instrument are that the instrument may not be well designed, or that subjects may not answer the questions carefully. To reduce the potential problem of having a poorly designed instrument, this study used instruments that had been shown to be reliable and valid in past studies. The internal reliabilities for this study generally

exceeded those reported in the literature. To assess whether respondents answered the questions carefully, a number of the items were reverse scored. There are no indications that respondents answered these questions any differently than the non-reverse-scored items.

The cross-sectional nature of the study is a possible limitation. Information was collected at one point in time, but many of the relationships could be better understood if studied over time. For example, the relationship between job-related tension and turnover could be better understood by measuring job-related tension at one point in time for all subjects, waiting a period of time until some of the subjects had left their public accounting positions, and then comparing the earlier reported level of job-related tension of those leaving with the level of those remaining.

5.6 FUTURE RESEARCH

Cross-sectional research shows relationships as they exist at one point in time, but it is not able to capture dynamic changes occurring over time. This can be accomplished only through a longitudinal approach. Because of the interactive nature of stress and its consequences, a gap in knowledge will remain until such longitudinal studies are done.

A natural extension of this research project is to use the present sample of 1,000 individuals still employed in public accounting as the base for a longitudinal study. Respondents to the survey will receive a copy of the results of the study. When the study results are mailed to these individuals, their assistance could be sought for a longitudinal research project on the consequences of stress in public accounting.

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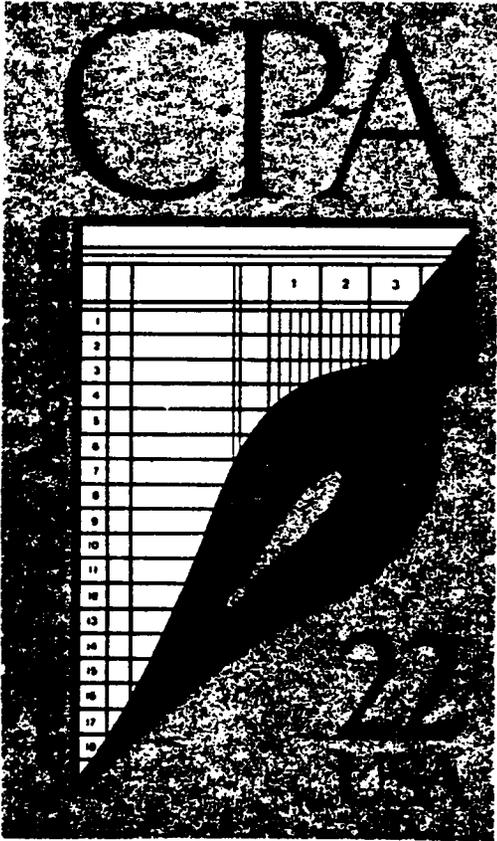
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APPENDIX A

Questionnaire Sent to Those Still Employed in Public Accounting (Non-Turnover Questionnaire)

A STUDY OF STRESS IN PUBLIC ACCOUNTING



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Section I

As individuals we differ in the way we respond to various situations and conditions. This section of the survey is designed to provide information with respect to job stress. For purposes of this survey stress is defined as existing whenever you experience feelings of pressure, strain, or tension at work.

For each item in the survey, circle the appropriate number (1-7) which best describes how frequently each item is a source of workplace stress to you.

Circle 1 if the condition described is **never** a source of stress;

Circle 2 if it is **rarely** a source of stress;

Circle 3 if it is **occasionally** a source of stress;

Circle 4 if it is **sometimes** a source of stress;

Circle 5 if it is **often** a source of stress;

Circle 6 if it is **usually** a source of stress;

Circle 7 if it is **always** a source of stress.

Extent to which each item is a
source of workplace stress
(Circle your answer)

1. The goals and objectives for my job are not clear.	1	2	3	4	5	6	7
2. I am asked to do a lot of unnecessary projects.	1	2	3	4	5	6	7
3. I have to take work home to stay caught up.	1	2	3	4	5	6	7
4. The work quality standards here are unrealistic.	1	2	3	4	5	6	7
5. There are insufficient opportunities for advancement in this organization.	1	2	3	4	5	6	7
6. I am held too accountable for the work of my co-workers.	1	2	3	4	5	6	7
7. The time deadlines for completing work assignments are too unreasonable.	1	2	3	4	5	6	7

8. The jobs I am assigned are just not important.	1	2	3	4	5	6	7
9. It is not clear to me what my job responsibilities are.	1	2	3	4	5	6	7
10. I seem to receive conflicting requests from different people (e.g., co-workers, bosses).	1	2	3	4	5	6	7
11. I spend too much time in unimportant meetings which take me away from my work.	1	2	3	4	5	6	7
12. My assigned tasks are too difficult for me to do.	1	2	3	4	5	6	7
13. I do not have the opportunity to develop myself for the future.	1	2	3	4	5	6	7
14. I am expected to be a source of help for too many people.	1	2	3	4	5	6	7
15. I have to rush in order to complete my job.	1	2	3	4	5	6	7
16. I do not receive enough feedback on how well I am doing my work.	1	2	3	4	5	6	7
17. I am not sure of exactly what is expected of me.	1	2	3	4	5	6	7
18. I do things on the job that are accepted by one person and not accepted by another person.	1	2	3	4	5	6	7
19. I am responsible for too many activities.	1	2	3	4	5	6	7
20. I am asked to do things that I have not been trained to do.	1	2	3	4	5	6	7

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 21. I am hurting my career progress by staying in my job. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I am too responsible for providing needed information to others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. There is just not enough time to do my work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. My job lacks any variety - it is the same old thing over and over. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. I am not certain how much authority I have. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. I can't seem to do my job because I am asked to do too many conflicting tasks. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. I have too much work to do to be able to complete it all in a timely fashion. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. I can't do a good job with my present skills and abilities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. I am not learning new skills in my job. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. I am too responsible for keeping my work group one big happy family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. I am constantly working against the pressure of time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. I am not given enough freedom to do my job as I see fit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Section II

Many people experience some strain or ill health as a result of working hard at their jobs. For each item, circle the number which indicates the extent to which the item is true for you.

- Circle 1 if the statement is **not at all true.**
Circle 2 if the statement is **true to a very little extent.**
Circle 3 if the statement is **true to some extent.**
Circle 4 if the statement is **true to a considerable extent.**
Circle 5 if the statement is **true to a very great extent.**

	Extent to which item is true for you (Circle your answer)				
1. My job tends to directly affect my health.	1	2	3	4	5
2. I work under a great deal of tension.	1	2	3	4	5
3. I have felt fidgety or nervous as a result of my job.	1	2	3	4	5
4. I get irritated or annoyed over the way things are going on my job.	1	2	3	4	5
5. If I had a different job, my health would probably improve.	1	2	3	4	5
6. Job worries sometimes get me down physically.	1	2	3	4	5
7. Problems associated with my job have kept me awake at night.	1	2	3	4	5
8. I have worried, after making a decision, whether I did the right thing.	1	2	3	4	5
9. I have felt nervous before attending meetings with other members in this organization.	1	2	3	4	5
10. I often "take my job home with me" in the sense that I think about it when doing other things.	1	2	3	4	5

- | | | | | | |
|---|---|---|---|---|---|
| 11. I find I am inclined to "take things hard." | 1 | 2 | 3 | 4 | 5 |
| 12. I often wonder whether it's all worth it. | 1 | 2 | 3 | 4 | 5 |

Section III

This section measures the relationship between work activity and family activity. For each item circle the number which indicates the extent to which you agree with the statement.

Circle 1 if you **strongly disagree** with the statement.

Circle 2 if you **disagree** with the statement.

Circle 3 if you are **inclined to disagree** with the statement.

Circle 4 if you are **inclined to agree** with the statement.

Circle 5 if you **agree** with the statement.

Circle 6 if you **strongly agree** with the statement.

Extent to which you agree
with the statement
(Circle your answer)

1. After work, I come home too tired to do some of the things I'd like to do.	1	2	3	4	5	6
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2. On the job I have so much work to do that it takes away from my personal interests.	1	2	3	4	5	6
--	---	---	---	---	---	---

3. Because my work is demanding, at times I am irritable at home.	1	2	3	4	5	6
---	---	---	---	---	---	---

4. The demands of my job make it difficult to be relaxed at home.	1	2	3	4	5	6
---	---	---	---	---	---	---

NOTE: RESPOND TO ITEMS 5 THROUGH 8 ONLY IF YOU NOW LIVE WITH A SPOUSE AND/OR CHILD.

5. My work schedule often conflicts with my family life.	1	2	3	4	5	6
--	---	---	---	---	---	---

6. My family dislikes how often I am preoccupied with my work while I am home.	1	2	3	4	5	6
--	---	---	---	---	---	---

7. My work takes up time that I'd like to spend with my family.	1	2	3	4	5	6
---	---	---	---	---	---	---

8. My job makes it difficult to be the kind of spouse or parent I'd like to be.	1	2	3	4	5	6
---	---	---	---	---	---	---

Section IV

Each of us displays certain kinds of behaviors, thought patterns, and personal characteristics. For each set of descriptions below, circle the number on the continuum that best describes where you are between each pair.

1. People who know me well would describe me as

relaxed and easy-going	1	2	3	4	5	6	7	hard driving and competitive
------------------------	---	---	---	---	---	---	---	------------------------------

2. I'm never quite on time
- | | | | | | | | | |
|--|---|---|---|---|---|---|---|-------------------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | I'm always on time for appointments |
|--|---|---|---|---|---|---|---|-------------------------------------|

3. Quite honestly, the things I enjoy most are

leisure time activities	1	2	3	4	5	6	7	job related activities
-------------------------	---	---	---	---	---	---	---	------------------------

4. In general, my behavior is

not governed by trying to please others	1	2	3	4	5	6	7	governed by a desire for recognition and achievement
---	---	---	---	---	---	---	---	--

5. When someone is talking to me, chances are I'll

listen quietly without showing any impatience	1	2	3	4	5	6	7	anticipate what they are going to say by nodding, interrupting or finishing sentences for them
---	---	---	---	---	---	---	---	--

6. At the end of a typical work day, I usually feel like

I accomplished everything I needed to	1	2	3	4	5	6	7	I have not accomplished enough
---------------------------------------	---	---	---	---	---	---	---	--------------------------------

7. In trying to complete a project or solve a problem I tend to

take a break or quit if I'm feeling fatigued	1	2	3	4	5	6	7	wear myself out before I'll give up on it
--	---	---	---	---	---	---	---	---

Section V

The following statements show some of the ways people feel about the work they do. For each item, circle the statement which tells how you feel about your position.

1. Circle the number of the statement which best tells how good a job you have:
 1. The job is an excellent one, very much above the average.
 2. The job is a fairly good one.
 3. The job is only average.
 4. The job is not as good as average.
 5. The job is a very poor one, very much below the average.

2. Circle the number of the statement which best describes your feelings about your job:
 1. I am very happy and satisfied on this job.
 2. I am fairly well satisfied on this job.
 3. I am neither satisfied nor dissatisfied--it is just an average job.
 4. I am a little dissatisfied on this job.
 5. I am very dissatisfied and unhappy on this job.

3. Circle the number of the statement which best describes general conditions on this job:
 1. General working conditions are very bad.
 2. General working conditions are poor--not as good as the average.
 3. General working conditions are about average--neither good nor bad.
 4. In general, working conditions are good--better than average.
 5. General working conditions are very good--much better than the average.

4. Circle the number of the statement which best tells how good an organization you work for:
 1. It is an excellent organization to work for--one of the best.
 2. It is a good organization to work for but not one of the best.
 3. It is only an average organization to work for. Many others are just as good.
 4. It is a below average organization to work for. Many others are better.
 5. It is probably one of the poorest organizations to work for I know.

5. Circle the number of the statement which best tells how your feelings compare with those of other people you know:
 1. I dislike my job much more than most people dislike theirs.
 2. I dislike my job more than most people dislike theirs.
 3. I like my job about as well as most people like theirs.
 4. I like my job better than most people like theirs.
 5. I like my job much better than most people like theirs.

6. Circle the number of the statement which best tells how you feel about the work you do on your job:
 1. The work I do is very unpleasant. I dislike it.
 2. The work I do is not pleasant.
 3. The work is "just about average." I don't have any particular feeling about whether it is pleasant or not.
 4. The work is pleasant and enjoyable.
 5. The work is very enjoyable. I very much like to do the work called for on this job.

7. Circle the number of the following statements to show how much of the time you are satisfied with your job:
1. Most of the time.
 2. A good deal of the time.
 3. About half of the time.
 4. Occasionally.
 5. Seldom.
8. Suppose you had a very good friend who is looking for a job in your line of work and you know of a vacancy in this organization for which your friend is well qualified. Would you: (Circle number)
1. Recommend this job as a good one to apply for.
 2. Recommend this job but caution your friend about its shortcomings.
 3. Tell your friend about the vacancy but not anything else, then let him or her decide whether to apply or not.
 4. Tell your friend about the vacancy but suggest that he or she look for other vacancies elsewhere before applying.
 5. Try to discourage your friend from applying by telling the bad things about the job.
9. How well satisfied are you with this job? (Circle number)
1. Completely dissatisfied.
 2. More dissatisfied than satisfied.
 3. About half and half.
 4. More satisfied than not.
 5. Completely satisfied.

Section VI

The following statements measure your propensity to leave public accounting. For each statement circle the number that best describes your feelings about the statement.

1. I often think about leaving public accounting. (Circle number)
 1. Strongly disagree.
 2. Disagree.
 3. Slightly disagree.
 4. Slightly agree.
 5. Agree.
 6. Strongly agree.

2. I will probably look for a new job outside of public accounting in the next year. (Circle number)
 1. Strongly disagree.
 2. Disagree.
 3. Slightly disagree.
 4. Slightly agree.
 5. Agree.
 6. Strongly agree.

3. How long do you plan to stay in public accounting? (Circle number)
 1. Less than one more year.
 2. One more year.
 3. Two more years.
 4. Three more years.
 5. Four more years.
 6. Five or more years.

10. Area of specialization. (Circle number)

1. AUDIT
2. TAX
3. MANAGEMENT ADVISORY SERVICES
4. SMALL BUSINESS CLIENTS
5. GOVERNMENTAL

11. Type of firm. (Circle number)

1. NATIONAL, BIG-EIGHT
2. NATIONAL, NON-BIG-EIGHT
3. REGIONAL
4. LOCAL

12. Number of professional staff in your office of the firm _____ PROFESSIONALS.

13. Average weekly hours worked during "busy season(s)" _____ HOURS.

14. Average weekly hours worked outside of "busy season(s)" _____ HOURS.

15. Number of weeks in "busy season(s)" _____ WEEKS.

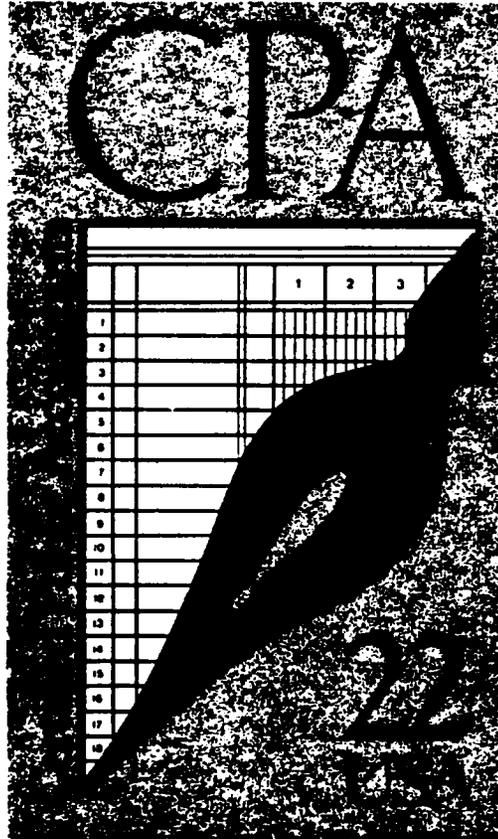
16. Approximate number of nights per year spent out of town on work _____ NIGHTS.

YOUR COOPERATION IN THIS EFFORT IS GREATLY APPRECIATED.

APPENDIX B

Questionnaire Sent to Those No Longer Employed in Public Accounting (Turnover Questionnaire)

A STUDY OF STRESS IN PUBLIC ACCOUNTING



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Section I

As individuals we differ in the way we respond to various situations and conditions. This section of the survey is designed to provide information with respect to job stress. For purposes of this survey stress is defined as existing whenever you experience feelings of pressure, strain, or tension at work.

This section relates to your last public accounting position. For each item in the survey, circle the appropriate number (1-7) which best describes how frequently each item was a source of workplace stress for you.

Circle 1 if the condition described was **never** a source of stress;

Circle 2 if it was **rarely** a source of stress;

Circle 3 if it was **occasionally** a source of stress;

Circle 4 if it was **sometimes** a source of stress;

Circle 5 if it was **often** a source of stress;

Circle 6 if it was **usually** a source of stress;

Circle 7 if it was **always** a source of stress.

Extent to which each item was a
source of workplace stress
(Circle your answer)

1. The goals and objectives for my job were not clear.	1	2	3	4	5	6	7
2. I was asked to do a lot of unnecessary projects.	1	2	3	4	5	6	7
3. I had to take work home to stay caught up.	1	2	3	4	5	6	7
4. The work quality standards were unrealistic.	1	2	3	4	5	6	7
5. There were insufficient opportunities for advancement in the organization.	1	2	3	4	5	6	7
6. I was held too accountable for the work of my co-workers.	1	2	3	4	5	6	7
7. The time deadlines for completing work assignments were too unreasonable.	1	2	3	4	5	6	7

8. The jobs I was assigned were just not important.	1	2	3	4	5	6	7
9. It was not clear to me what my job responsibilities were.	1	2	3	4	5	6	7
10. I seemed to receive conflicting requests from different people (e.g., co-workers, bosses).	1	2	3	4	5	6	7
11. I spent too much time in unimportant meetings which took me away from my work.	1	2	3	4	5	6	7
12. My assigned tasks were too difficult for me to do.	1	2	3	4	5	6	7
13. I did not have the opportunity to develop myself for the future.	1	2	3	4	5	6	7
14. I was expected to be a source of help for too many people.	1	2	3	4	5	6	7
15. I had to rush in order to complete my job.	1	2	3	4	5	6	7
16. I did not receive enough feedback on how well I was doing my work.	1	2	3	4	5	6	7
17. I was not sure of exactly what was expected of me.	1	2	3	4	5	6	7
18. I did things on the job that were accepted by one person and not accepted by another person.	1	2	3	4	5	6	7
19. I was responsible for too many activities.	1	2	3	4	5	6	7
20. I was asked to do things that I had not been trained to do.	1	2	3	4	5	6	7

21. I was hurting my career progress by staying in my job.	1	2	3	4	5	6	7
22. I was too responsible for providing needed information to others.	1	2	3	4	5	6	7
23. There was just not enough time to do my work.	1	2	3	4	5	6	7
24. My job lacked any variety - it was the same old thing over and over.	1	2	3	4	5	6	7
25. I was not certain how much authority I had.	1	2	3	4	5	6	7
26. I could not seem to do my job because I was asked to do too many conflicting tasks.	1	2	3	4	5	6	7
27. I had too much work to do to be able to complete it all in a timely fashion.	1	2	3	4	5	6	7
28. I could not do a good job with my available skills and abilities.	1	2	3	4	5	6	7
29. I was not learning new skills in my job.	1	2	3	4	5	6	7
30. I was too responsible for keeping my work group one big happy family.	1	2	3	4	5	6	7
31. I was constantly working against the pressure of time.	1	2	3	4	5	6	7
32. I was not given enough freedom to do my job as I saw fit.	1	2	3	4	5	6	7

Section II

Many people experience some strain or ill health as a result of working hard at their jobs. For each item, circle the number which indicates the extent to which the item was true for you when you were last employed in public accounting.

- Circle 1 if the statement was **not at all true**.
- Circle 2 if the statement was **true to a very little extent**.
- Circle 3 if the statement was **true to some extent**.
- Circle 4 if the statement was **true to a considerable extent**.
- Circle 5 if the statement was **true to a very great extent**.

	Extent to which item was true for you (Circle your answer)				
1. My job tended to directly affect my health.	1	2	3	4	5
2. I worked under a great deal of tension.	1	2	3	4	5
3. I felt fidgety or nervous as a result of my job.	1	2	3	4	5
4. I got irritated or annoyed over the way things were going on my job.	1	2	3	4	5
5. I felt that if I had a different job, my health would probably improve.	1	2	3	4	5
6. Job worries sometimes got me down physically.	1	2	3	4	5
7. Problems associated with my job kept me awake at night.	1	2	3	4	5
8. I often worried, after making a decision, whether I did the right thing.	1	2	3	4	5
9. I felt nervous before attending meetings with other members in the organization.	1	2	3	4	5
10. I often "took my job home with me" in the sense that I thought about it when doing other things.	1	2	3	4	5
11. I found I was inclined to "take things hard."	1	2	3	4	5

12. I often wondered whether it was
all worth it.

1 2 3 4 5

Section III

Each of us displays certain kinds of behaviors, thought patterns, and personal characteristics. For this section we are interested in your personal characteristics or behaviors when you were last employed in public accounting. For each set of descriptions below, circle the number on the continuum that best describes where you were between each pair when last employed in public accounting.

1. People who knew me well would have described me as

relaxed and easy-going	1 2 3 4 5 6 7	hard driving and competitive
------------------------	---------------	------------------------------

2. I was never quite on time

	1 2 3 4 5 6 7	I was always on time for appointments
--	---------------	---------------------------------------

3. Quite honestly, the things I enjoyed most were

leisure time activities	1 2 3 4 5 6 7	job related activities
-------------------------	---------------	------------------------

4. In general, my behavior was

not governed by trying to please others	1 2 3 4 5 6 7	governed by a desire for recognition and achievement
---	---------------	--

5. When someone was talking to me, chances were I would

listen quietly without showing any impatience	1 2 3 4 5 6 7	anticipate what they were going to say by nodding, interrupting or finishing sentences for them
---	---------------	---

6. At the end of a typical work day, I usually felt like

I had accomplished everything I needed to	1 2 3 4 5 6 7	I had not accomplished enough
---	---------------	-------------------------------

7. In trying to complete a project or solve a problem I tended to

take a break or quit if I felt fatigued	1 2 3 4 5 6 7	wear myself out before I would give up on it
---	---------------	--

8. I frequently
 tended to take things one at a time 1 2 3 4 5 6 7 tried to do several things at once
9. Someone who knew me very well would say that I would
 rather have played than worked 1 2 3 4 5 6 7 rather have worked than played
10. When I played a game (tennis, cards, etc.) my enjoyment came from
 the social interaction 1 2 3 4 5 6 7 winning
11. When it came to waiting in line (at banks, theaters, post offices, etc.)
 it simply didn't bother me 1 2 3 4 5 6 7 I really got impatient and frustrated
12. When it came to getting ahead at work
 many things were more important 1 2 3 4 5 6 7 nothing was more important
13. I liked to associate with people who were
 easy going and took life as it came 1 2 3 4 5 6 7 dedicated to getting ahead
14. I never felt rushed 1 2 3 4 5 6 7 I always felt rushed
15. I regularly found satisfaction in non-job pursuits such as hobbies, friends & family 1 2 3 4 5 6 7 My primary source of satisfaction came from my job
16. Frequently "doing nothing" could be quite enjoyable 1 2 3 4 5 6 7 I was not happy unless I was always doing something
17. When it came to my temper
 I just didn't seem to have one 1 2 3 4 5 6 7 I found it hard to control at times

Section IV

This section compares your present position with your last public accounting position. For each item circle the number which indicates the extent to which you agree with the statement.

- Circle 1 if you **strongly disagree** with the statement.
- Circle 2 if you **disagree** with the statement.
- Circle 3 if you are **inclined to disagree** with the statement.
- Circle 4 if you are **inclined to agree** with the statement.
- Circle 5 if you **agree** with the statement.
- Circle 6 if you **strongly agree** with the statement.

	Extent to which you agree with the statement (Circle your answer)					
1. The workload for my present position is less than the workload for my last public accounting position.	1	2	3	4	5	6
2. I am better qualified for my present position than I was for my last public accounting position.	1	2	3	4	5	6
3. Time pressures in my present position are less than time pressures in my last public accounting position.	1	2	3	4	5	6
4. The number of conflicting demands in my present position is less than the number of conflicting demands in my last public accounting position.	1	2	3	4	5	6
5. I have a clearer understanding of what is expected of me in my present position than I did in my last public accounting position.	1	2	3	4	5	6
6. Opportunities for advancement in my present position are greater than opportunities for advancement in my last public accounting position.	1	2	3	4	5	6

- | | | | | | | |
|--|---|---|---|---|---|---|
| 7. I have less responsibility for other employees in my present position that I did in my last public accounting position. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. The variety of work offered by my present position is greater than the variety of work offered by my last public accounting position. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. My present position is more compatible with my family life than my last public accounting position was with my family life. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. The job-related tension associated with my present position is less than the job-related tension associated with my last public accounting position. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. The job satisfaction associated with my present position is greater than the job satisfaction associated with my last public accounting position. | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. The financial rewards (salary, employee benefits, etc.) of my present position are greater than the financial rewards of my last public accounting position. | 1 | 2 | 3 | 4 | 5 | 6 |

Section V

This section measures the relationship between work activity and family activity when you were last employed in public accounting. For each item circle the number which indicates the extent to which you agree with the statement.

- Circle 1 if you **strongly disagree** with the statement.
- Circle 2 if you **disagree** with the statement.
- Circle 3 if you are **inclined to disagree** with the statement.
- Circle 4 if you are **inclined to agree** with the statement.
- Circle 5 if you **agree** with the statement.
- Circle 6 if you **strongly agree** with the statement.

	Extent to which you agree with the statement (Circle your answer)					
1. After work, I came home too tired to do some of the things I would like to do.	1	2	3	4	5	6
2. On the job I had so much work to do that it took away from my personal interests.	1	2	3	4	5	6
3. Because my work was demanding, at times I was irritable at home.	1	2	3	4	5	6
4. The demands of my job made it difficult to be relaxed at home.	1	2	3	4	5	6
NOTE: RESPOND TO ITEMS 5 THROUGH 8 ONLY IF YOU LIVED WITH A SPOUSE AND/OR CHILD WHEN YOU WERE LAST EMPLOYED IN PUBLIC ACCOUNTING.						
5. My work schedule often conflicted with my family life.	1	2	3	4	5	6
6. My family disliked how often I was preoccupied with my work while I was at home.	1	2	3	4	5	6
7. My work took up time that I would have liked to spend with my family.	1	2	3	4	5	6
8. My job made it difficult to be the kind of spouse or parent I would have liked to be.	1	2	3	4	5	6

Section VI

Finally, we would like to ask a few questions about yourself for demographic purposes.

1. Your gender. (Circle number of your answer)
 1. MALE
 2. FEMALE

2. Your marital status when you were last employed in public accounting. (Circle number)
 1. NEVER MARRIED
 2. MARRIED
 3. DIVORCED
 4. SEPARATED
 5. WIDOWED

3. Number of children you had when you were last employed in public accounting. (Circle number)
 1. None
 2. One
 3. Two
 4. Three
 5. Four or more

4. Age of children when you were last employed in public accounting.
 1. Not applicable
 2. All pre-school age
 3. Pre-school age and school age
 4. All school age
 5. School age and post school age
 6. All post school age

5. Your present age: _____ YEARS

6. How much formal education did you have when you left public accounting? (Answer by circling yes or no)

1. BACHELOR'S DEGREE, NON-BUSINESS	yes	no
2. BACHELOR'S DEGREE, BUSINESS	yes	no
3. GRADUATE DEGREE, NON-BUSINESS	yes	no
4. GRADUATE DEGREE, BUSINESS	yes	no

7. Employment status of spouse when you were last employed in public accounting. (Circle number)
 1. NOT MARRIED (QUESTION DOES NOT APPLY)
 2. SPOUSE NOT EMPLOYED
 3. SPOUSE EMPLOYED PART TIME
 4. SPOUSE EMPLOYED FULL TIME

8. Length of time employed in public accounting: _____ YEARS

9. Last position held in public accounting. (Circle number)
 1. JUNIOR
 2. SENIOR ASSISTANT
 3. SENIOR
 4. MANAGER
 5. SENIOR MANAGER
 6. PARTNER

10. Area of specialization of last public accounting position. (Circle number)
 1. AUDIT
 2. TAX
 3. MANAGEMENT ADVISORY SERVICES
 4. SMALL BUSINESS CLIENTS
 5. GOVERNMENTAL

11. Type of firm of last public accounting employer. (Circle number)
 1. NATIONAL, BIG-EIGHT
 2. NATIONAL, NON-BIG-EIGHT
 3. REGIONAL
 4. LOCAL

12. Approximate number of professional staff in the office of your previous public accounting employer _____ PROFESSIONALS.

13. Average weekly hours worked in your previous public accounting position during "busy season(s)" _____ HOURS.

14. Average weekly hours worked in your previous public accounting position outside of "busy season(s)" _____ HOURS.

15. Number of weeks in your last public accounting position "busy season(s)" _____ WEEKS.

16. Approximate number of nights per year spent out of town on work in your last public accounting position. _____ NIGHTS.

17. Number of months since last employed in a public accounting position _____ MONTHS.

18. Average weekly hours worked in present (non-public-accounting) position _____ HOURS.

19. Present position: _____

20. Type of Employer. (Circle answer)
 1. SELF EMPLOYED
 2. PRIVATE COMPANY
 3. FINANCIAL INSTITUTION/BANK
 4. GOVERNMENT
 5. EDUCATIONAL INSTITUTION
 6. NOT-FOR-PROFIT ORGANIZATION (NONEDUCATIONAL)

YOUR COOPERATION IN THIS EFFORT IS GREATLY APPRECIATED.

APPENDIX C

Cover Letters

First mailing - non-turnover group

**The R. B. Pamplin College of Business
Department of Accounting**

**Blacksburg, VA 24061
(703) 961-6591**

October 12, 1987

Public accounting is generally regarded as a high-stress occupation, but not enough is known about the causes of this stress and its consequences. To learn more about these issues I am conducting a research project on stress in public accounting. Because you have been in public accounting for several years, you have a good understanding of the sources and consequences of job-related tension. For this reason I am asking for your participation in this study.

To insure that the results are representative of all certified public accountants, it is important that each questionnaire be completed and returned. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is done to allow us to check your name off of the mailing list and to avoid the inconvenience of a second mailing to you. The results of the study will be published in aggregate form only. Each respondent will receive a copy of these results.

The enclosed questionnaire can be answered in about twenty minutes and should be returned in the envelope provided. I understand the great demands on your time, but your responses will be of significant value in studying the issue of stress in public accounting. As a token of my appreciation, I am enclosing a CPA commemorative stamp for you to keep.

I would be most happy to answer any questions you might have. Please write or call collect. My telephone number is (703) 953-0174.

Thank you for your assistance.

Sincerely,

Karen M. Collins, CPA

First mailing - turnover group

**The R. B. Pamplin College of Business
Department of Accounting**

**Blacksburg, VA 24061
(703) 961-6591**

October 12, 1987

Public accounting is generally regarded as a high-stress occupation, but not enough is known about the causes of this stress and its consequences. To learn more about these issues I am conducting a research project on stress in public accounting. Because you were in public accounting for several years, you have a good understanding of the sources and consequences of job-related tension in the public accounting profession. For this reason I am asking you to take part in this study. Your participation will be extremely valuable by providing insight into the public accounting experiences of a group of individuals now employed in positions outside of public accounting.

To insure that the results are representative of those who have recently left public accounting positions, it is important that each questionnaire be completed and returned. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is done to allow us to check your name off of the mailing list and to avoid the inconvenience of a second mailing to you. The results of the study will be published in aggregate form only. Each respondent will receive a copy of these results.

The enclosed questionnaire can be answered in about twenty minutes and should be returned in the envelope provided. I understand the great demands on your time, but your responses will be of significant value in studying the issue of stress in public accounting. As a token of my appreciation, I am enclosing a CPA commemorative stamp for you to keep.

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Thank you for your assistance.

Sincerely,

Karen M. Collins, CPA

Second mailing - non-turnover group

**The R. B. Pamplin College of Business
Department of Accounting**

**Blacksburg, VA 24061
(703) 961-6591**

November 9, 1987

About three weeks ago I wrote to you seeking your opinions on issues related to stress in public accounting. As of today I have not received your completed questionnaire. If you have already returned it to me, please accept my sincere thanks. If not, please complete the questionnaire and return it at your earliest convenience.

I have undertaken this study to learn more about the causes and consequences of stress in public accounting. With your experiences in public accounting, you have a good understanding of the sources and consequences of job-related tension. For this reason, I have asked for your participation in this study.

In order for the results of the study to be representative of the opinions of all CPA's, it is important that you return your questionnaire. If by some chance you did not receive the questionnaire, or it got misplaced, please write to me or call me collect at (703) 953-0174 and I will get another one in the mail to you promptly.

Your cooperation is greatly appreciated.

Sincerely,

Karen M. Collins, CPA

Second mailing - turnover group

**The R. B. Pamplin College of Business
Department of Accounting**

**Blacksburg, VA 24061
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Your cooperation is greatly appreciated.

Sincerely,

Karen M. Collins, CPA

APPENDIX D

Correlation Matrices

Work-Related Stressors

Correlation Matrix for the Work-Related Stressors - Non-turnover Group

	ROLEAMB	ROLECFL	QUANTOL	QUALTOL	CAREERP	RESPONP	TIMEPRE	JOBSCOP
ROLEAMB	1.00000 0.0000 1001	0.57540 0.0001 993	0.21847 0.0001 997	0.43562 0.0001 998	0.51390 0.0001 998	0.37102 0.0001 998	0.23054 0.0001 998	0.59429 0.0001 1000
ROLECFL	0.57540 0.0001 993	1.00000 0.0000 1000	0.54303 0.0001 995	0.50532 0.0001 998	0.39264 0.0001 997	0.52477 0.0001 997	0.49170 0.0001 997	0.52939 0.0001 999
QUANTOL	0.21847 0.0001 997	0.54303 0.0001 995	1.00000 0.0000 1003	0.45870 0.0001 1000	0.11164 0.0004 999	0.58227 0.0001 1000	0.76267 0.0001 1000	0.25022 0.0001 1002
QUALTOL	0.43562 0.0001 998	0.50532 0.0001 998	0.45870 0.0001 1000	1.00000 0.0000 1004	0.34499 0.0001 1001	0.48094 0.0001 1001	0.46319 0.0001 1001	0.41172 0.0001 1003
CAREERP	0.51390 0.0001 998	0.39264 0.0001 997	0.11164 0.0004 999	0.34499 0.0001 1001	1.00000 0.0000 1004	0.32952 0.0001 1001	0.15532 0.0001 1001	0.65549 0.0001 1002
RESPONP	0.37102 0.0001 998	0.52477 0.0001 997	0.58227 0.0001 1000	0.48094 0.0001 1001	0.32952 0.0001 1001	1.00000 0.0000 1006	0.51608 0.0001 1003	0.36334 0.0001 1003
TIMEPRE	0.23054 0.0001 998	0.49170 0.0001 997	0.76267 0.0001 1000	0.46319 0.0001 1001	0.15532 0.0001 1001	0.51608 0.0001 1003	1.00000 0.0000 1006	0.30782 0.0001 1003
JOBSCOP	0.59429 0.0001 1000	0.52939 0.0001 999	0.25022 0.0001 1002	0.41172 0.0001 1003	0.65549 0.0001 1002	0.36334 0.0001 1003	0.30782 0.0001 1003	1.00000 0.0000 1006

Correlation Matrix for the Work-Related Stressors - Turnover Group

	ROLEAMB	ROLECFL	QUANTOL	QUALTOL	CAREERP	RESPONP	TIMEPRE	JOBSCOP
ROLEAMB	1.00000 0.0000 186	0.54890 0.0001 186	0.12106 0.1007 185	0.45178 0.0001 184	0.43086 0.0001 183	0.28996 0.0001 185	0.19295 0.0085 185	0.57930 0.0001 186
ROLECFL	0.54890 0.0001 186	1.00000 0.0000 187	0.43886 0.0001 186	0.40827 0.0001 185	0.35196 0.0001 184	0.47014 0.0001 186	0.35833 0.0001 186	0.46665 0.0001 187
QUANTOL	0.12106 0.1007 185	0.43886 0.0001 186	1.00000 0.0000 186	0.42799 0.0001 184	0.08098 0.2758 183	0.55810 0.0001 185	0.69168 0.0001 185	0.11153 0.1296 186
QUALTOL	0.45178 0.0001 184	0.40827 0.0001 185	0.42799 0.0001 184	1.00000 0.0000 185	0.31659 0.0001 182	0.41640 0.0001 185	0.43556 0.0001 185	0.39440 0.0001 185
CAREERP	0.43086 0.0001 183	0.35196 0.0001 184	0.08098 0.2758 183	0.31659 0.0001 182	1.00000 0.0000 185	0.29748 0.0001 183	0.10321 0.1644 183	0.61494 0.0001 184
RESPONP	0.28996 0.0001 185	0.47014 0.0001 186	0.55810 0.0001 185	0.41640 0.0001 185	0.29748 0.0001 183	1.00000 0.0000 186	0.35954 0.0001 186	0.15730 0.0320 186
TIMEPRE	0.19295 0.0085 185	0.35833 0.0001 186	0.69168 0.0001 185	0.43556 0.0001 185	0.10321 0.1644 183	0.35954 0.0001 186	1.00000 0.0000 186	0.23282 0.0014 186
JOBSCOP	0.57930 0.0001 186	0.46665 0.0001 187	0.11153 0.1296 186	0.39440 0.0001 185	0.61494 0.0001 184	0.15730 0.0320 186	0.23282 0.0014 186	1.00000 0.0000 187

APPENDIX E

Statistical Test to Compare Correlation Coefficients

Test to Compare Two Correlation Coefficients - Gender¹⁶⁴

```
PROC IML;
TITLE 'HYPOTHESIS 9-1';
USE HYP091;
READ ALL INTO CORRMAT;
NCOLCORR = NCOL(CORRMAT);
JHALF    = J(2,NCOLCORR,0.5);
JONE     = J(2,NCOLCORR,1.0);
JTWO     = J(2,NCOLCORR,2.0);
JTHREE   = J(2,NCOLCORR,3.0);
CORR1    = (JONE + CORRMAT(|{2 4},|)) / (JONE - CORRMAT(|{2 4},|));
CORR2    = JHALF * LOG(CORR1);
DENOM1   = (CORRMAT(|{1 3},|) - JTHREE) ** (-1);
DENOM2   = (DENOM1(|1,|) + DENOM1(|2,|)) ** 0.5;
ZOBS     = (CORR2(|1,|) - CORR2(|2,|)) / DENOM2;
ABSZOBS  = ABS(ZOBS);
PVALUE   = J(1,NCOLCORR,2) * ( 1 - PROBNORM(ABSZOBS) );

NOTE 'HYPOTHESIS 9-1: THERE ARE NO SIGNIFICANT DIFFERENCES BETWEEN';
NOTE '   FEMALES AND MALES IN THE HYPOTHESIZED RELATIONSHIPS';
NOTE '   OF HYPOTHESIS 1';
NOTE '   ';
NOTE 'ZOBS CONTAINS THE TEST STATISTICS AND PVALUE THE ';
NOTE 'CORRESPONDING PVALUES FOR THE FOLLOWING VARIABLES (IN THE';
NOTE 'FOLLOWING ORDER)';
NOTE '   ';
NOTE 'ROLEAMB ROLECFL QUANTOL QUALTOL CAREERP RESPONP TIMEPRE';
NOTE 'JOBSCOP INTERRL INTERRF';
NOTE '   ';
PRINT ZOBS ,, PVALUE;
```

¹⁶⁴ Based on mathematical formula as presented on p. 313, Biostatistical Analysis, 2nd Edition, Jerrold H. Zar, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1984.

Test to Compare More Than Two Correlation Coefficients

- Family Type¹⁶⁵

```
PROC IML;
TITLE 'HYPOTHESIS 10-1';
USE HYPO101;
READ ALL INTO CRR;
NCOLCORR = NCOL(CRR);
JHALF = J(5, NCOLCORR, 0.5);
JONE = J(5, NCOLCORR, 1.0);
JTHREE = J(5, NCOLCORR, 3.0);
CORR1 = (JONE + CRR({2 4 6 8 10}, |)) / (JONE - CRR({2 4 6 8 10}, |));
CORR2 = JHALF * LOG(CORR1);
CORR2SQ = CORR2 * CORR2;
CHI1A = CORR2SQ * (CRR({1 3 5 7 9}, |) - JTHREE);
CHI1B = CHI1A(1, |) + CHI1A(2, |) + CHI1A(3, |) + CHI1A(4, |) + CHI1A(5, |);
CHI2A = CRR({1 3 5 7 9}, |) - JTHREE;
CHI2B = CHI2A(1, |) + CHI2A(2, |) + CHI2A(3, |) + CHI2A(4, |) + CHI2A(5, |);
CHI3A = CORR2 * (CRR({1 3 5 7 9}, |) - JTHREE);
CHI3B = CHI3A(1, |) + CHI3A(2, |) + CHI3A(3, |) + CHI3A(4, |) + CHI3A(5, |);
CHI3C = CHI3B * CHI3B;
CHISQUARE = CHI1B - (CHI3C / CHI2B);
PVALUE = 1 - PROBCHI(CHISQUARE, 4);

NOTE 'HYPOTHESIS 10-1: THERE ARE NO SIGNIFICANT DIFFERENCES AMONG';
NOTE 'THE VARIOUS FAMILY TYPES IN THE HYPOTHESIZED RELATIONSHIPS';
NOTE 'OF HYPOTHESIS 1';
NOTE ' ';
NOTE 'CHISQUARE CONTAINS THE TEST STATISTICS AND PVALUE THE ';
NOTE 'CORRESPONDING PVALUES FOR THE FOLLOWING VARIABLES (IN THE';
NOTE 'FOLLOWING ORDER)';
NOTE ' ';
NOTE 'ROLEAMB ROLECFL QUANTOL QUALTOL CAREERP RESPONP TIMEPRE';
NOTE 'JOBSCOP INTERRL INTERRF';
NOTE ' ';
PRINT CHISQUARE , , PVALUE;
```

¹⁶⁵ Based on mathematical formula as presented on p. 315, Biostatistical Analysis, 2nd Edition, Jerrold H. Zar, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1984.

Test to Compare Two Correlation Coefficients -

Personality Type¹⁰⁸

```
PROC IML;
TITLE 'HYPOTHESIS 11-1';
USE HYP0111;
READ ALL INTO CORRMAT;
NCOLCORR = NCOL(CORRMAT);
JHALF     = J(2,NCOLCORR,0.5);
JONE      = J(2,NCOLCORR,1.0);
JTWO      = J(2,NCOLCORR,2.0);
JTHREE    = J(2,NCOLCORR,3.0);
CORR1     = (JONE + CORRMAT(|{2 4},|)) / (JONE - CORRMAT(|{2 4},|));
CORR2     = JHALF * LOG(CORR1);
DENOM1    = (CORRMAT(|{1 3},|) - JTHREE) ** (-1);
DENOM2    = (DENOM1(|1,|) + DENOM1(|2,|)) ** 0.5;
ZOBS      = (CORR2(|1,|) - CORR2(|2,|)) / DENOM2;
ABSZOBS   = ABS(ZOBS);
PVALUE    = J(1,NCOLCORR,2) * (1 - PROBNORM(ABSZOBS));

NOTE 'HYPOTHESIS 11-1: THERE ARE NO SIGNIFICANT DIFFERENCES BETWEEN';
NOTE '    TYPE A/B BEHAVIOR IN THE HYPOTHESIZED RELATIONSHIPS';
NOTE '    OF HYPOTHESIS 1';
NOTE '    ';
NOTE 'ZOBS CONTAINS THE TEST STATISTICS AND PVALUE THE ';
NOTE 'CORRESPONDING PVALUES FOR THE FOLLOWING VARIABLES (IN THE';
NOTE 'FOLLOWING ORDER)';
NOTE '    ';
NOTE 'ROLEAMB ROLECFL QUANTOL QUALTOL CAREERP RESPONP TIMEPRE';
NOTE 'JOBSCOP INTERRL INTERRF';
NOTE '    ';
PRINT ZOBS ,, PVALUE;
```

¹⁰⁸ Based on mathematical formula as presented on p. 313, Biostatistical Analysis, 2nd Edition, Jerrold H. Zar, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1984.

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the scanned document**