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ABSTRACT

Title of Dissertation: SOURCES OF MANAGERIAL STRESS AND
THE DEMOGRAPHIC, OCCUPATIONAL,
AND PERSONALITY PREDICTORS OF
THOSE SOURCES

Carol Jean Dell'Amore, Doctor of Philosophy, 1997

Dissertation directed by: Dr. Nancy K. Schlossberg
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Personnel Services

The study consisted of two parts. The purpose of the first part was to present an exploratory model of the types of pressures or stressors that are impacting managers and executives today. The second part of the study investigated the relationship among the reported categories of pressures and certain demographic, managerial, and personality characteristics.

Subjects of the study were 507 participants of a university-based seminar in leadership development. Data for the study were drawn from questionnaires and

inventories taken as part of their participation in the training program.

The model, developed from a content analysis of responses to an open-ended question, yielded seven categories of pressures. The categories are: Factors intrinsic to the job, Career development, Balance, Family and financial, Self factors, Need to succeed, and Fears and inadequacies.

None of the hypothesized relationships were supported, but significant relationships were found between women managers and the category of pressures, Balance, and between the number of managers with young children and the category of pressures, Family and financial. A possible relationship was found between the MBTI preference for intuition and the category of pressures, Fears and Inadequacies. Implications for theory, research, and practice are discussed.

SOURCES OF MANAGERIAL STRESS
AND THE DEMOGRAPHIC, OCCUPATIONAL, AND PERSONALITY
PREDICTORS OF THOSE SOURCES

by

Carol Jean Dell'Amore

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland at College Park in partial fulfillment
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1997

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TABLE OF CONTENTS

List of Tables	iv
List of Figures	v
Chapter I: Introduction	1
Managerial Stress	1
Organizational Restructuring	1
Shift in Management Role	3
Diversity of the Workforce	4
Rapid Changes in Technology	5
Response to Stress: Executive Coaching and Counseling	6
Statement of the Problem	10
Purpose of the Study	13
Research Questions	14
Significance of the Study	14
Chapter II Related Research	18
Managerial Stress Sources	18
Theoretical Approaches to Sources of Managerial Stress	19
Psychological Sources of Managerial Stress	26
Empirical Studies	29
Stress Sources and Specific Managerial Characteristics	36
Gender	36
Level in Organization	44
MBTI Personality Type	46
Summary	52
Chapter III Design Statement	58
Subjects	58
Data Source	59
Participant Background Form	59
Supplemental Biographical Inventory	60
Myers-Briggs Type Indicator	61
Technical Aspects of the MBTI	63
Procedure and Data Analysis	66
Content Analysis	66
Procedures in the Content Analysis	66
Logistic Regression Analyses	70
Variables	70
Dependent Variables	70
Hypotheses Related to the Dependent Variables	71
Independent Variables	72
Hypotheses Related to the Independent Variables	74
Summary	80

Chapter IV	Results	82
	Content Analysis	82
	Summary of Results Related to the Research	
	Hypotheses	88
	Expanded Categories Derived from Content Analysis	
	89
	Factors Intrinsic to the Job	89
	Career Development	91
	Balance	92
	Family and Financial	93
	Self Factors	95
	Need to Achieve	96
	Fears and Inadequacies	97
	Summary	99
	Quantitative Analysis	104
	Description of the Population	104
	Adjustments to the Variables	105
	Bivariate Analyses	107
	Logistic Regression Analyses	116
	Results Relating to the Hypotheses	119
Chapter V	Discussion	123
	Content Analysis	123
	Summary	128
	Quantitative Analysis	131
	Summary	141
	Limitations	142
	Implications	146
	Theoretical Implications.	146
	Research Implications	149
	Implications for Practice	152
	Conclusion	158
Appendix A	Policy on Data and Privacy	161
Appendix B	Participant Background Form	162
Appendix C	Supplemental Biographic Inventory	163
Appendix D	Description of Population	167
Appendix E	Distribution of MBTI Preferences	170
Appendix F	Bivariate Analyses, Categorical Variables	171
Appendix G	Bivariate Analyses, Continuous Variables	234
Appendix H	Logistic Regression Analyses	241
References	248

LIST OF TABLES

1.	MBTI Personality Types	63
2.	Research Design of the Study	80
3.	Hypothesized Relationships of Variables	81
4.	Sample 1 Categories	83
5.	Rater Agreement from Sample 1	84
6.	Sample 2 Categories	86
7.	Rater Agreement from Sample 2	87
8.	Final categories	87
9.	Outline of Expanded Categories of Managerial Pressures	99
10.	Summary of Bivariate Analyses - Categorical Variables	109
11.	Summary of Bivariate Analyses - Continuous Variables	114
12.	Results of Logistic Regression Analyses	118

LIST OF FIGURES

1. An Integrated Model of Managerial Stress 130



CHAPTER I

Introduction

Managerial Stress

If "stress is ubiquitous, an inevitable feature of normal living" (Lazarus, 1980), then today, more than ever, managers and executives are experiencing particularly stressful lives. Operating in the fast-paced, constantly changing, and highly competitive contemporary American business environment, organizational leaders have tremendous demands placed on them at both the managerial and executive levels. In addition to the ongoing business demands to increase profitability, maintain quality, and focus on customer needs, managers are expected to function in a context of declining organizational resources, reduced operating budgets, and reduced opportunities for promotion (Smith, L., 1994). Whereas the general complexity of managerial life is a constant source of stress for managers, a number of recent organizational trends can be said to contribute even further to the demanding and stressful executive and managerial roles. These trends are: organizational restructuring, change in management style, diversity of the workforce, and rapid advances in technology.

Organizational Restructuring

A phenomenon of the nineties is that organizations of all types and sizes are attempting to maintain

competitiveness and to increase productivity through restructuring efforts. According to a 1994 American Management Association and Deloitte and Touche study, approximately 84% of American companies are undergoing at least one major business transformation (Romano, 1995). Most of these transformations are characterized by mergers or acquisitions, downsizings, or business process reengineering projects. The impact of these mergers and acquisitions usually results in a change in top management, new management practices, and a blending of organizational cultures to which managers and executives must quickly adjust and adapt. Additionally, survey data reveal that changes in ownership often lead to elimination of many managerial and professional jobs and, for those remaining, an increased workload (Gutknecht & Keys, 1993).

A popular business strategy of the nineties is reengineering—the fundamental rethinking and radical redesign of business processes (Hammer & Champy, 1993) and the often subsequent and significant number of downsizings and layoffs. In January 1996 employers slashed 97,379 jobs, the highest monthly total in two years and 150% higher than those layoffs announced a year before (Challenger Employment Report, 1996).

It is the managers and executives who are called upon to implement these reengineering and downsizing plans. This responsibility for eliminating people's jobs often causes a

great deal of stress and burnout (Smith, L., 1994). Many develop "survivor sickness" (Noer, 1993), which is manifested by feelings of anger, depression, fear, distrust, and guilt. Simultaneously, these managers are concerned for their own job security as companies continue to de-layer the managerial ranks. Since 1985, more than 1.5 million managers have lost their jobs or have had their positions redefined into nonmanagement positions (Antonioni, 1995). In the context of this unstable organizational environment, managers face myriad related problems including dealing with employees' resistance to change, keeping employees productive and motivated, and dealing with often significantly increased work loads.

Shift in Management Role

A second trend in organizations today is a shift in the expectations of the appropriate management style utilized by leaders in organizations. The traditional management model of the past, which can be best described as controlling and authoritarian, has been replaced by a more participative, inclusive, empowering, and team-oriented approach (Geber, 1992; Drucker, 1995). Managers and executives are now expected to transform themselves from autocrats into coaches or facilitators. For many, particularly older managers and executives, this change carries with it a perceived loss of status and power

(Block, 1993) and places additional demands to learn new sets of skills often without sufficient training.

This new management approach often leads to incompatible expectations imposed on many managers. The very managers who are required to implement tough business practices, including at times the elimination of jobs, are the same managers who are now being required to become more "people oriented" and more sensitive to their employees.

Diversity of the Workforce

The changing demographics of the American workforce present a third organizational trend that places increased stress on managers. Once again, managers are required to adjust their leadership style in order to effectively direct diverse groups of people. Women, native born people of color, and immigrants increasingly dominate the American workforce and will make up two thirds of the workforce by the year 2000 (Morrison, 1992). A recent American Management Association survey estimates that in the year 2000 only 15% of entry-level workers will be American-born white men, compared with 47% in 1985 (Romano, 1995). In addition to the changing face of the American workforce, the conduct of American business is becoming more global in orientation, requiring managers and executives to be skilled in dealing with multinational cultural differences when working with international customers, vendors, and other foreign business affiliates (Kirby, 1993).

In order for corporations to stay competitive, managing diversity, in fact, has become a corporate business strategy. Managers are thus required to work in new ways with people who are different from themselves, people who have different values, different motivational patterns, and different attitudes toward work. To emphasize the critical need for managers to adapt to the diverse workforce, many companies link managerial performance standards and reward systems to the ability to manage diversity (Fernandez, 1993). Once again, managers face a predicament. Designers of corporate philosophies and practices mandate that managers adapt to changing expectations and learn new leadership skills, yet they provide those managers with little preparation or training.

Rapid Changes in Technology

A final organizational trend that has placed additional stress on managers and executives is the feverish pace created by automation and technology. Automation in the form of pagers, fax machines, cellular telephones, and computers have many managers feeling as if they are on call around the clock (Losey, 1991). Recent surveys suggest that many white-collar Americans are approaching twelve-hour work days and work-filled evenings (Fisher, 1992). Additionally, the rapid advancements in technology are forcing managers to keep up with the new pace and are requiring them to retool and continually

expand their skills. At the same time, managers must assure that those they manage are similarly updated (Bardwick, 1991).

Response to Stress: Executive Coaching and Counseling

Given this increasingly stressful environment, many managers are seeking the assistance and support of professionals who can help them both to improve performance and to more effectively cope with the stress and demands of managerial life. In fact, this service has become so popular that a new specialization, known as executive coaching and counseling, is emerging within the counseling profession.

Executive coaching and counseling is basically a one-on-one executive development program in which a helping professional, usually a counselor or psychologist by training, engages in a series of individual consultation sessions over an extended period of time to address issues affecting the manager's work and performance at work, including such factors as balance, alignment with personal values, coping with stress, and individual well-being. Sperry (1993b) describes the help from psychologically trained consultants as three very different types of interventions: (a) consulting, (b) counseling and psychotherapy, and (c) coaching. In a consulting intervention, the professional serves as a "sounding board" and as an advisor to the manager in order to help clarify

and validate here-and-now managerial decisions. In counseling and psychotherapy, the professional takes on a more clinical role and investigates characterological issues, relying typically on time-limited dynamic approaches and cognitive therapy. In the coaching scenario, the professional teaches skills, primarily human relations skills, and gives feedback to the executive on his or her leadership style and interpersonal behavior.

Many counseling approaches are utilized in executive coaching and counseling—from behavioral (Koonce, 1994; Kirby, 1993) to very intensive and psychoanalytical approaches (Smith, L., 1993; Levinson, 1996). Although also described as part confidant, part therapist, and part career counselor, the executive coach is most frequently compared to a personal trainer who works with athletes to help them to perform at their best. In a manner similar to that of a fitness coach, the executive coach helps highly effective CEOs, vice-presidents and other mid- to senior-level managers become even more effective leaders by helping them broaden their job skills, tackle personal weaknesses, alleviate stress, and preserve a personal life (Eng, 1996). Executive coaching and counseling can also be used to rehabilitate a previously exceptional manager who suffers from eroding performance (Koonce, 1994). In this situation, executive coaching may be a targeted, short-term intervention rather than an extended developmental process.

Providers of executive coaching and counseling services vary. Many consulting firms offer these individualized services to supplement their executive outplacement work. Individual psychologists in private practice are also beginning to specialize by working exclusively with managers and executives. Colleges and universities are also providing similar services in connection with their professional development activities. Other providers of management development programs include executive coaching and counseling as an integral part of their leadership training programs. As an example, the Leadership Development Program, designed by the Center for Creative Leadership and considered to be one of the most popular executive development programs in the country (Keeping Track, 1993), has as its hallmark an intensive three-hour individual coaching and feedback session.

Although it may be said that executive coaching and counseling has emerged, in part, as a response to the current stressful organizational environment, other factors are converging to provide impetus to the growth of and widespread interest in this new counseling specialization. As companies are becoming sensitive to the costs of turning over their critical human resources or of wasting expensive management talent, executive coaching is considered a useful and effective executive retention strategy. Anecdotal data from many organizational human resources

professionals indicate that companies are starting to allocate specific funds for executive coaching as part of their training and development budgets.

Another factor leading to the current popularity of executive coaching has to do with a shift in the way managers and executives are currently perceived. Traditionally, this group was considered to be an elite group of superior, all-knowing, individuals who were in control of all situations. Since these managers and executives would not want to be seen as exhibiting any personal or professional weaknesses, this perception prohibited them from seeking out the assistance of a mental health professional. However, with the de-layering of organizations and a loosening of the traditional hierarchial structure, there has also been a recognition that managers and executives do not have all the answers and are not the isolated and infallible beings as once believed.

A final factor contributing to the popularity of executive coaching is the fact that organizations of today support and encourage professional development at all levels in the organization. Management, especially senior-level managers in large organizations, are now not only encouraged but also expected to engage in developmental activities and programs (Conger, 1992).

In summary, the fast-paced and challenging lives of managers today have, in part, given rise to a new specialization of counseling. This study attempts to address a critical need of the new cadre of counseling professionals who are offering assistance to this unique managerial and executive population.

Statement of the Problem

Because this specialization of executive coaching and counseling is so new, little theoretical or empirically-based knowledge exists to assist professionals in understanding their client population. Some recent work has been done on the development of counseling models and specific counseling approaches for managers and executives (Manz & Neck, 1991; Sperry, 1993a; Martin, 1996; Kiel, Rimmer, Williams, & Doyle 1996). However, to date little attention has been given to an understanding of the unique problems or issues of managers and executives as clients of counseling service providers. Although much has been written about the intense organizational context within which managers and executives must operate, what is less known is how these managers and executives are personally impacted by the demands of their role and what they, themselves, perceive to be the root causes of their stress.

The question becomes, then, what are the problems, issues, conflicts, or concerns of this client group. That is, what are the specific sources of managerial

stress—those innermost pressures that weigh upon and plague the manager and that potentially represent harm? Limited research has been conducted to fully answer these questions. To date, the few empirical studies that have been conducted on managerial stress have mostly utilized existing models, drawn from the general occupational stress literature, to define stress sources. These models have typically been taken from major instruments that measure work stress, some of which have been rationally derived and some which have resulted from factor analytic techniques. Furthermore, these stress assessments have been normed against a general worker population and were not specifically designed for a managerial or executive group. In the existing studies, these general models have been applied to a managerial group. Crampton, (1995), for example, in a study of human resource managers and their perceptions of stress, used a combination of items from the Holmes and Rahe (1967) model of personal stress sources and a model of work-related stressors developed by Kuzmits (1986).

Other applications of general occupational models of stress sources to a managerial group can be found in studies by Rogers, Li, and Ellis (1994), who used the Job-Related Tension Index developed by Kahn, Wolfe, Quinn, and Snoek (1964), and by Fitzgerald (1994), who used the six occupational work role scales of the Occupational Stress

Inventory developed by Osipow and Spokane (1987). Still other studies, rather than relying on general occupational stress models, have identified stressors through a survey of the literature (Antonioni, 1995; Menon & Akhilesh, 1994).

No empirical study to date has begun the assessment of stress precipitators or causes of managerial stress by first developing a model emanating from a managerial population. It is the assumption of the author of this study that unique and distinct sources of stress exist for managers and executives, and these sources are markedly different from the general occupational stress models that have been applied to a managerial population in previous studies.

Thus, with the rise and current interest in executive coaching and counseling, professionals who have chosen to specialize in this competency lack the research-based knowledge and conceptual frameworks that would help them gain a better understanding of their client population and the unique issues this population may be confronting.

This study attempted to address the problem of how to develop a better understanding and awareness of the sources of managerial stress and how managers and executives may differ in the pressures they report.

Purpose of the Study

The purpose of this study was to investigate the nature of the pressures facing managers and executives. It should be noted that the words *pressure* and *stressor* are used interchangeably; both words describe the phenomenon or condition that causes stress in an individual. Exploratory in design, the first part of the study, then, developed a conceptual model that represents the sources of stress as reported by managers.

Managers and executives represent a broad and diverse group of individuals, differing widely over a number of dimensions. The author of this study assumed that different managers experience or perceive stress differently and that similarities can be found regarding various subgroups and what they perceive as sources of stress. Based on a review of the literature, several studies have suggested that certain factors relating to the manager's demographic, managerial, or personality characteristics are important variables in an examination of managerial stress and the stressors facing managers. These factors are as follows:

1. Demographic characteristics. Gender, age, educational level, marital status, and number of young children (Rogers, 1977; Menon & Akhilesh, 1994; Barnett, 1995).

2. Occupational characteristics. Level in organization, number of employees (direct and indirect

reports), compensation, organizational budget responsibility, and years of managerial experience (Moss, 1981; Westman, 1992; Crampton, 1995).

3. Personality type as measured by the Myers-Briggs Type Indicator. (O'Roark, 1986; Smith, J. H., 1992; Short & Grasha, 1995).

Once a conceptual framework identifying specific categories of managerial pressures had been developed, the second part of the study then investigated whether the above-mentioned demographic, occupational, and personality characteristics of managers were predictive of a certain category of pressure.

Research Questions

Specifically, then, the research questions the author of this study attempted to answer are as follows:

1. What are the underlying themes or dimensions that make up the pressures facing managers?
2. What selected demographic, occupational, or personality characteristics are predictive of a specific category or dimension of pressures?

Significance of the Study

One of the paradoxes of executive life is that stress can have positive as well as negative consequences. On the one hand, stress can be very beneficial. It can motivate, can stimulate creativity, and can actually cause managers to perform at a higher level of effectiveness. (Quick,

Nelson, & Quick, 1990). However, stress can also be harmful and can cause an array of unhealthy consequences for both the manager and the organization.

Scores of research studies have been conducted on the relationship between stress and various physical or mental conditions. For the purposes of this study, it is sufficient to state that studies have implicated stress in the following medical, psychological, and behavioral disorders:

Medical disorders include coronary disease, hypertension, cancer, ulcers, diabetes, backaches, headaches, allergies, and arthritis.

Psychological problems resulting from stress include depression, irritability, anger, inability to think clearly, and job dissatisfaction or burnout.

Behavioral consequences of job related stress can be seen in the form of smoking, alcohol and drug abuse, accident proneness, violence or aggressiveness, sleep disturbance, and general disengagement.

Equally compelling consequences of managerial stress are the costs to the organization that employs these managers and executives. Such costs may be overt and direct or more subtle and indirect. In terms of direct costs, estimates place stress-related costs to companies between \$100 and \$300 billion a year. (Tetzeli, 1992) These estimates include lawsuits, losses as a result of

absenteeism, direct costs of accidents, and the loss of productivity.

Other less quantifiable consequences of managerial stress to the organization exist in the form of diminished relationships, unknown lost opportunity costs, reduced motivation and vitality, and poor managerial performance, which could lead to detrimental or costly managerial decisions.

Through this study, the author attempted to provide the first step in eliminating, alleviating, or ameliorating managerial stress. Very simply, in order to do something positive about the sources of stress in managers, it is important to first identify such sources, and the success of any improvement effort depends upon accurate diagnosis. A clearer understanding of the unique pressures facing managers and executives and of how different managers experience stress can thus provide helping professionals with the information that they need to develop programs or strategies to combat the negative consequences of managerial stress.

A second and closely related contribution of this study was that it initiated the development of the much needed conceptual frameworks and models to assist professionals specializing in the new and emerging field of executive coaching and counseling. The results of this study will begin to provide executive coaches with an

empirically-based understanding of the very complex phenomenon of managerial stress and of how it is manifested across a diverse management population.

As the field of executive coaching and counseling continues to grow, more professionals will be seeking answers to assist them as they work with a new, challenging, and very different type of counseling population. Studies such as this can thus help professionals in their work as they, in turn, attempt to help managers function better and live healthier lives. Today, more than ever, effective leaders are needed in organizations. This investigation can indirectly contribute to not only bettering the lives of individual managers and executives but also to improving the quality of the organizations in which they work and ultimately to enhancing society as a whole.

CHAPTER II

Related Research

The literature on stress is one of the most investigated aspects of psychology, and occupational stress is one of the most researched areas of vocational psychology (Herr & Cramer, 1988). However, the research, empirical or theoretical, related to managerial stress and, more specifically, the sources of managerial stress are rather limited. There are two areas of literature to be considered in the review of the literature: (a) literature centered around the sources of stress experienced by managers and executives in general, and 2) studies which investigate the relationship of stress sources to specific managerial characteristics or isolated variables such as gender, level in the organization, or personality type.

Managerial Stress Sources

Much of the literature on the general sources of managerial stress constitutes more popularized discussions and tends to be either theoretical or based on qualitative research. Most models or theories of managerial stress derive from anecdotal information, field observations, interviews, or limited surveys. Within this body of literature, two types of approaches have been employed. One approach focuses on the stressors relating to the functional role of the manager. A second approach, which

examines the manager's or executive's intrinsic sources of stress, has taken a more psychoanalytic focus.

More empirically-based research, employing larger groups of managers as subjects, is found in studies which attempt to identify specific stressors that account for the greatest degree of stress in a managerial population.

Theoretical Approaches to Sources of Managerial Stress

A number of articles and books have provided general descriptions or individual theories regarding the sources of managerial stress.

Drawing on both his own experience with executives and on the occupational stress literature, Yates (1979) developed an early theoretical model of managerial stress that divides stressors into two possible categories: (a) work stressors that emanate from the organizational environment and (b) stressors that are personal and derive from the individual. Sources of stress at work include five categories of factors: those intrinsic to the job, such as exorbitant work demands and information overload; those related to the manager's role in organization, such as role conflict and responsibility for people; those related to career development, such as under promotion and lack of job security; those related to relationships at work, such as conflicts with boss or subordinates; and those related to organizational structure, such as lack of participation and bureaucratic procedures.

The second division of stressors experienced by managers are personal stressors. These consist of (a) extraorganizational factors such as family problems or financial difficulties and (b) individual factors linked to the manager's feelings, values, and unique personality characteristics.

Another important early model was developed by Firth (1985), who analyzed case studies of thirty-eight male and female managers referred to a psychology clinic for assistance in coping with high stress. The author points to the personal meanings, most frequently described in terms of inadequacies or as relationship difficulties with coworkers, that people attach to feelings of stress. Firth suggests that stress occurs when some aspect of work has resonated with early experience. Four types of presenting problems were identified: (a) high investment in work alone (such as overwork, worry, uncertainty); (b) poor relationship with colleagues (for example, cannot work in group, poor relationship with subordinates); (c) promotion problems (too much responsibility, avoidance of promotion); and (d) role conflicts, (conflicts about success, career).

Bunker (1985) discusses an intensive managerial stress assessment project conducted at AT&T. Participants in the process were exposed to a rigorous two-day research process focusing on the causes, manifestations, consequences, coping styles, and moderators of their life stress. Of

interest to this study is the model of stressors utilized as part of the assessment process. The dimensions were intuitively generated and clustered into categories on the basis of a review of previous research. The stressor categories consisted of work stressors (task and role, evaluative, career-related, interpersonal relations at work, and impact of work on nonwork) and nonwork stressors (marital and spouse, family concerns, financial, interpersonal, societal, and impact of nonwork on work).

Glowinkowski and Cooper (1986) developed a framework of managerial stress sources through a comprehensive review of the research. The authors identified six sources of stress to be:

1. Factors intrinsic to the job. The authors suggest that managerial work is particularly susceptible to work. This condition can be quantitative (too much work) or qualitative (too difficult to perform), and this condition of excess demand has been linked to psychological, behavioral, and physiological stress responses. The authors also suggest that women managers and young or new managers may suffer from work "underload," a situation in which highly qualified managers are underutilized.

2. Role-based factors (role ambiguity and role conflict). Certain requirements of the manager role can lead to stress. Three particular manifestations of stress may be due to conflict between different roles, conflict

within a role, and lack of clarity regarding role requirements.

3. Relationships with others. Managers spend from 40-68 percent of their time in contact with others, and these interpersonal relationships, particularly with superiors or subordinates, frequently lead to stress. The authors suggest that this is a particular area in need of empirical research.

4. Career development factors. Issues of sources of stress in this arena center around lack of job security and status incongruity (under/over promotion or reaching a career plateau). The authors suggest that different career stages bring with them different stressors. In the establishment stage of one's management career, recognition and relationships may be sources of stress, whereas in the next stage of "advancement," mastering the job and moving up are key sources of stress. In the later stage of "maintenance," fears of obsolescence or negative organizational attitudes could be considerable stress precipitators.

5. Organizational structure. Stressors precipitated by organizational structure are related to lack of participation in decision making, low organizational trust, poor communications, and office politics. Lack of decision-making authority has received most research attention, and findings generally support a causal relationship between

decision-making opportunities and psychological strain.

6. Work-family interface. The authors propose two major issues impacting the work-family relationship and stress. The first has to do with the career stage of the employee. They suggest that the work-family relationship is more stressful at the early (advancement) stage of one's career. At the mid-career stage, the work-family relationship is less likely to be a salient source of stress. The second issue to consider is gender. The authors point to studies indicating that the work-family relationship is generally far more stressful for female managers.

Hall and Savery (1987) put forth a similar theory of work stressors for managers and executives. Their list includes (a) role overload: when unreasonable deadlines or lack of resources cause excessive demands; (b) role ambiguity: when objectives are insufficiently defined; (c) boundary roles: when the executive is unable to develop effective relationships with others; (d) role conflict: when incompatible demands are made of the executive; and (e) lack of autonomy: when a manager does not have sufficient authority to carry out responsibilities. According to the authors, this last item is particularly relevant to middle-level managers.

The context and changing role of the manager as a source of managerial stress is a theme common to the

writings of Rosabeth Moss Kanter (1989). She reports that one of the greatest sources of stress, as the role of the manager becomes more that of a coach/facilitator with reliance on new managerial skills, is the perceived loss of power, authority, and control.

Quick et al. (1990) investigated the challenges facing executives. Based on their intensive interviews with both male and female chief executives, the authors derived a model of stress which incorporates a new element—internal demands—unseen in any of the work previously mentioned. Similar to other works, the authors identify executive stressors as either organizational demands (environmental, interpersonal, or informational in nature) or personal demands. Although these personal factors included demands of both family and community roles, the authors also suggest another type of personal demand is found in the executive's ego-ideal. The ego-ideal is the fundamental basis for the executive's drive and ambition and consists of internalized values, restraints, and model behavior patterns towards which the executive strives. The authors also suggest another "lethal problem" (p. 147) facing executives is that of loneliness. The isolation that executives often find themselves in is a result of several factors including the cultural value placed on independence and individualism, the discrimination of individuals across the corporate hierarchy, and the deeply psychological

causes of separation anxiety and interpersonal defensiveness.

Finally, in reviewing the qualitative studies regarding sources of managerial stress, the author presents a survey of 164 human resource managers conducted by Crampton (1995), which examined the attitudes and perceptions of managers regarding stress. Two categories, which identified a number of causes of stress, were conceptualized: personal and work related. The specifics of each category were drawn from two previously-developed scales, the Holmes and Rahe Schedule of Recent Experiences Survey (Holmes & Rahe, 1967) and the Organizational Readjustment Rating Scale developed by Kuzmits (1986). Personal causes of stress included: death of spouse or close family member, divorce/separation, jail term, personal injury/illness, marriage, change in health, and money problems. There was high agreement that each of the personal items were causes of stress (agreement ranged from 76% to 97%).

Work-related causes of stress included: fired/laid off, demoted, poor performance appraisal, job overload, problems with boss, changes in conditions, job design/high job demands, boring/routine job, and positive situations. Levels of agreement regarding these items as causes of stress ranged from 76% to 93%.

Psychological Sources of Managerial Stress

The preceding discussions have all, with the exception of the Quick et al. study, examined the sources of managerial stress from the perspective of external factors, either emanating from the manager's organizational life or personal life. Using a more psychoanalytical or psychological approach, a number of theorists, however, have also offered some alternative explanations of the causes of managerial stress. In these cases the theorists have suggested that internal factors in the form of psychological needs, drives, or motivations can lead to stress. In his classic *Harvard Business Review* article "What Killed Bob Lyons?" Harry Levinson (1981b) postulated that the nature of the manager's personality is an intrinsic source of stress and anxiety. Specifically, he refers to the destructive ego drive which can lead to a relentless pursuit of success.

Kets de Vries (1989) suggests that psychological forces create so much stress in the executive that these forces can actually cause the executive to "derail." He maintains that as executives succeed to top leadership positions, they become more and more isolated from others who were once peers, and as a result, their own normal dependency needs for contact, support, and reassurance rise up and overwhelm them. In fact, many become so isolated that they lose a sense of reality and suffer from anxiety

associated with loneliness and disconnectedness. An equally compelling source of stress is the executive's fear of success. This fear manifests itself with frequent feelings of self-doubt and feelings of being an imposter. These executives feel that sheer luck has accounted for their rise to an executive position, and they have difficulty believing that they have achieved success through their own efforts.

Meth and Pasick (1990), in their investigation of men in therapy, have identified success addiction as a common source of stress among highly successful people. Success addiction is a malady similar to workaholism except that the craving is specifically for success rather than just increased time at work (Berglass, 1986). These individuals are constantly redefining and demanding newer and more difficult goals. Success addiction often leads to persistent dissatisfaction, for their goals are either unrealistic or, at best, provide only temporary fulfillment. The authors maintain that more and more managers are becoming troubled, conflicted, or emotionally damaged by their work and career climb.

Other theorists and management experts have presented conceptual models of internal pressures experienced by managers. Palmer (1990) suggests that leaders operate very competently and effectively in the external world while essentially denying their inner world. He discusses a

darker, shadow side of leaders and suggests five internal issues as follows: (a) deep insecurity about their own identity, (b) the belief that the universe is essentially hostile to human interests, (c) the belief that they hold the ultimate responsibility for everything, (d) fear of chaos, and (e) denial of death.

A more recent theory has been put forth by Kaplan (1991) in his study of executives whom he engaged in a process of "Biographical Action Research." He concludes that executives are highly specialized human beings who depend on achievement and success as a means of obtaining and reinforcing their own self-worth. He describes this driven and ambitious executive as "expansive" (p. 5), someone vitally concerned with gaining mastery over his or her environment. Kaplan also suggests an accompanying resistance to seeing oneself as lacking mastery, and that digging beneath the surface of efficacy and confidence, one finds conflicts, doubts and compulsions, limited availability for close relationships, avoidance of intimacy, and self-neglect.

Sperry (1993a) describes a continuum of levels of functioning in executives that are characterized as healthy, distressed, or impaired, and are described as follows:

Healthy - although certainly prone to pressures, the healthy executive tends to be "stress resistant" due to the

executive's self-reliance and rich network of professional and personal relationships.

Distressed - affected by varying stressors in their lives which impact their functioning on the job, at home, and in the community. Pressures facing this group are seen as marital problems, personality conflicts with coworkers, problems with controlling hostility, difficulty with authority, hidden conflicts over dependency, disappointed ambition, and fear of success.

Impaired - unable to bounce back and master challenges. Characterized by acute problems such as depression, substance abuse, stress related disorders, and severe marital problems, they also suffer from "success addiction."

Empirical Studies

The only empirical attempt at the construction of a model of managerial stress can be found in the work of Lee and Ashforth (1993). The researchers developed an integrated structural model of managerial burnout, which they maintain is a potential outcome of stress. Data were collected in two waves of data collection—first from 223 managers and, after an eight month intervening period, from 164 managers. The surveys used in the study were compiled by the researchers from existing questionnaires and measured 14 different variables. A factor analysis of the items led to six factors, which were posited as antecedents

of burnout. These factors included age, life satisfaction, job satisfaction, role stress, time spent with others, and helplessness. Results of a critical path analysis resulted in a revised model, confirming all factors with the exception of age.

It is doubtful, however, if this study can be generalized to other managerial populations since the subjects were primarily lower-level managers and supervisors, and they were in a very specialized field, human services. Also the population consisted of a higher proportion of women and minorities than is found in the general management population. The study does stand alone, however, in its attempt to empirically derive a model explaining the antecedents and outcomes of managerial stress.

Most empirically-based studies have been less focused on the establishment of a conceptual model and have been more interested in isolating specific causes or factors which lead to managerial stress.

The work of Kahn et al. (1964) was one of the original research efforts to address the subject of stress in organizations. The researchers investigated two constructs used consistently in the occupational stress literature: role conflict, the opposing or incompatible expectations placed on an individual in an occupational role; and role ambiguity, the lack of clear and consistent information

regarding one's organizational role. The researchers maintain that the work situation frequently presents conditions of ambiguity and conflict (rather than clarity and harmony) and that these conditions lead to considerable stress. The 1964 study set out to determine the prevalence of these conditions as well as to determine their distribution. The study involved two research projects. One, referred to as the intensive study, was made up of extensive case studies of 53 males either in professional or managerial positions. The second part of the study consisted of a national survey of 725 workers to ascertain the prevalence of job-related tensions in the population at large. The findings of the study supported the notion that contradictory role expectations give rise to opposing role pressures (role conflicts), which lead to intensified internal conflicts and increased tension associated with various aspects of the job, in the managerial population as well as in the general population. Likewise, the researchers found that in both populations, two types of role ambiguity (task ambiguity and socioemotional ambiguity) are associated with increased tension.

Rogers (1983) engaged in a comparative study of stress perceptions between 93 U.S. and 113 Canadian managers. Using the Job Related Tension Questionnaire (Kahn et al. 1964) as the measure of stress, Rogers discovered a discriminant analysis of the data yielded the finding that

frequent sources of stress for the largest proportion of U.S. managers were lack of information and a quality-quantity conflict. When a factor analysis of the questionnaire items was conducted, two stress factors emerged for the U.S. managers. These were described as (a) organization structure and performance and (b) work load and decision making. Given that all the items on the questionnaire were related to one's experience at work, there should be no surprise that other areas in the personal or psychological domains did not appear as stress factors.

Several studies have been centered around the managers' work relationships and relationship behaviors. In a two-year longitudinal study, Howard, Cunningham, and Rechnitzer (1986) found that increased levels of managerial interactions were associated with higher levels of stress, as evidenced through biochemical and physiological testing. Data derived from questionnaires, interviews, and biochemical and physiological testing were collected on 278 middle- and top-level managers, all male. The correlational analyses were performed using the data from time one and time two test administrations. Findings indicated that high levels of interaction are associated with coronary risk variables.

It is important to note, however, that the study made no distinction regarding the specific types of interactions

that the subjects were engaged in. Instead, the focus was solely on the amount of interactions the managers experienced. On the one hand, personal interactions could provide potential for conflict, yet they could also provide greater potential for supportive relationships. The findings, however, do indicate that the quantity of interaction alone has specific effects, producing physiological strain and an increased chance of developing coronary risk factors.

Deluga (1991) found, in a study of 80 subordinates and their 10 managers, that hard, upward-influencing behavior of subordinates was positively associated with manager interpersonal stress. It was suggested that subordinates might exert stress through activity aimed at influencing the superior in a direction desired by the subordinate. Since these attempts increase interpersonal contact, raise issues of power and control, and could potentially lead to conflict, the researcher set out to examine if these behaviors affect the level of superior stress. Stress was assessed by the Responsibility for People subscale of the Stress Diagnostic Survey (Ivancevich & Matteson, 1980). Findings of the correlational analysis revealed that manager interpersonal stress is positively related to subordinate influencing behaviors that were categorized as "hard." The strategies of these hard behaviors were: (a) coalition (developing alliances to support requests),

(b) assertiveness (the use of demands and forceful emotion), and (c) higher authority (cultivation of the backing of those in higher organizational levels).

The business environment that the manager finds himself or herself in has also been studied as a source of stress. Menon and Akhilesh (1994) suggest that very little attention has been given to whether the stress a manager experiences is related to his/her functional area. Whereas managers as a broad class do perform the same duties, each functional area has its own particular problems. The authors set out to identify these "functionally dependent stressors" (Menon and Akhilesh, 1994, p. 10) through a review of the literature and in-depth interviews. A list of nine stressors was derived. These included role ambiguity, pressure for performance, responsibility for people, responsibility for things, travel, being on the interface, status of the organizational function, crisis situation, and keeping up with change. A 63-item questionnaire assessing these stressors was administered to a group of 128 managers across five organizational function areas. Findings resulting from the multivariate analysis indicated that functional area showed as a significant main effect. Results of univariate analyses revealed that all factors except "keeping up with change" were dependent on the functional area of the manager. All other factors, however,

suggest that stress is seen as arising out of the function in which a manager performs.

Rahim (1996) investigated the differences between entrepreneurs and organizational managers in their experience of stress. The author suggests that since entrepreneurs and managers differ in attitudes, values, and demographic characteristics, it was reasonable to question how they were similar or different regarding their response to stress.

Data were collected from a group of 238 entrepreneurs and 288 managers. Stressors were defined by the four scales of the Occupational Stress Inventory (Osipow & Spokane, 1987) measuring role conflict, role ambiguity, role overload, and role insufficiency. The intent of the study was to investigate differences holistically on three constructs of stress, strain, and their moderators, not to investigate specifically how each group differed on individual stressors. Thus, the only result regarding the stressors was that a significant difference did exist between the two groups.

Other empirical studies have isolated certain correlates of managerial stress. These include subjectively high work load and time urgency (Friend, 1982); type of organization, private sector versus public sector (Ahmad, Vharadwaj, & Narula, 1985); task complexity (Puffer &

Brakefield, 1989), and technological evolution and change (Fulcheri, Barzega, Maina, Novara, & Raviszza, 1995).

Stress Sources and Specific Managerial Characteristics

Much of the literature on managerial stress includes research studies which focus on the stressors related to a specific type of manager. Three specific characteristics of the managerial population have received most of the research attention. These are gender, level in the organization, and personality type.

Gender

Research regarding how men and women experience stress has resulted in mixed findings. Much of the controversy centers around whether gender differences exist regarding the sources of stress. Some studies support the hypothesis that causes of stress in women managers are primarily familial (Staats & Staats, 1982; Senatra, 1988; Guelzow, Bird & Koball, 1991). A number of more recent studies, however, report that the experience of stress between men and women is more similar than different. A 1993 survey conducted by the New York Business Group on Health suggested that although job-related stress is widespread among working women, only 22% of respondents reported feelings of personal or family-rated stress. Regarding job-related stress, women managers report higher degrees of perceived job stress than nonmanagerial working women. The managers were also more dissatisfied with work overload,

and the nonmanagerial group were more dissatisfied with pay equity ("Study pinpoints," 1993).

Senatra (1988) studied 57 male and 37 female audit managers of a public accounting firm to determine if differences exist between men and women regarding their experience of stress sources. The author of the study utilized data from confidential questionnaires to assess the managers' perceptions of six organizational and three personal stressors, and to assess their perceptions of the consequences of role stress. Taking into consideration all stressors as a whole, gender differences were not statistically significant. However, differences in gender did exist when the specific types of stressors were analyzed. Organizational stressors contributed more to role conflict for women than for men, whereas organizational stressors led more to role ambiguity in men than in women. In the area of personal stressors, more variance in both role conflict and role ambiguity was explained for women.

Nelson, Quick, and Hitt (1990) studied gender differences with respect to sources of stress in 443 human resources managers. Data were collected from the researchers' Stress at Work survey, which was made up of items from three previously researched instruments and which measured 11 sources of stress. The only significant finding of the analysis was that female HR professionals reported more stress as a result of organizational politics

than did their male counterparts. No significant difference in the area of work/home conflict was reported. The authors suggest that political exchanges in the work environment are more stressful for women possibly because they are often excluded from political networks. The absence of significant differences between men and women in the area of work/home conflicts and career progress may reflect the successful adjustment of women in the HR profession, which has been historically more receptive to women than other professions.

In a National Institute of Mental Health survey of 300 men and women in managerial or professional occupations, men and women were similarly affected by both their job and by family roles (Erickson, 1995). Women feel no more anxiety on the job because they are mothers than do men because they are fathers. In fact, the data suggest professional men and women are living increasingly similar lives. The survey confirmed that two of seven job strains cause particular distress for both sexes: having to do dull, monotonous work and having to work under time pressure with conflicting demands were the most stressful job conditions.

Rather than a comparative study, Rogers et al. (1994) conducted an exploratory survey of 146 females in the federal government's Senior Executive Service regarding the subjects' perceptions of stress precipitators using the

Job-Related Tension Index (Kahn et al. 1964). A factor analysis of the items on the 15-item instrument yielded four stress precipitator factors: performance, work load, organizational design and responsibility/authority, and decision making. Associations between stressors and demographic variables were also explored. Seven of the eight demographic characteristics assessed revealed significant relationships with age and position (level) having the most associations. Finally, a cluster analysis yielded three groups of women who experienced similar stress patterns. The group with the highest overall level of perceived stress, the Job/Work centered group, were most concerned with stress precipitators stemming from the workload, the job itself, and the conflicting demands placed on them by others. A second group, the Achievement centered group, reported stress associated with their achievement of work goals and their ability to influence their superiors. Finally, the largest group (48% of the sample) was the Self-Actualization centered group, who reported low stress in the same items that precipitated high stress in the other two groups. Although this group represents more women than either of the other groups, it is significant to note that on a combined basis, more than half (52%) of all respondents were in the two high-stress groups.

Several empirical studies have presented structural models using path analysis to explain the intercorrelations among variables in the stress process. To investigate gender differences, the researchers then have applied the model to male and female populations. Using this methodology, Guelzow, Bird, and Koball (1991) surveyed 163 women and 149 men in professional positions. Of the four hypothesized variables, three (work schedule flexibility, age of youngest child, and number of children) were found to be significantly related to role strain. The study results reveal both similarities and differences in the stress process by gender. Although the results indicated that both men and women were psychologically vested in professional as well as family roles, different patterns in the stress model were found as follows:

1. Longer hours at work were directly associated with higher levels of role strain for women.

2. For men, larger family size and having work schedules that cannot accommodate family needs are associated with higher role strain.

3. For men, a significant negative effect was found between the number of hours worked and professional stress.

4. Flexibility of work schedule was associated negatively with higher levels of professional stress in men. The study suggests that gender is important when

considering variables critical to the explanation of stress outcomes.

Using the structural equation methodology, Barnett and Brennan (1995) questioned the notion that gender differences in stress are limited to issues of family-work. This study surveyed 504 professional men and women in dual-earner couples to determine if gender differences exist around seven potential job stressors. These hypothesized stressors were: skill discretion, decision authority, schedule control, job demands, pay adequacy, job security, and relations with supervisors. The analysis yielded only two of the seven factors (skill discretion and job demands) related to stress, and the result was the same for both men and women. The study thus concluded that gender has little effect on the relationship between job stressors and stress.

Using a sample of over 1300 executives two levels below CEO, Judge, Boudreau, and Bretz (1994) tested a structural model of executive attitudes toward job stress, job satisfaction, life satisfaction, and work-family conflict. The researchers hypothesized a model that suggested a positive relationship between two types of work-family conflict and job stress. The first type is work-to-family conflict, the interference of work with family activities such as long work hours preventing performance of duties at home. The second stress source was

family-to-work, the interference of family activities with work responsibilities such as unanticipated care-giving needs resulting in delayed performance of work duties.

The multivariate regressions revealed few differences between the men and the women executives, but since the women represented only 7% of the sample, they were excluded from the study and gender differences were not explored. It is still worthy to note the attitudes of the male executives toward family and work conflicts. Specifically, the study confirmed that both work-to-family and family-to-work issues positively influenced job stress for the male executives.

Finally, other authors suggest that although women managers face the same problems as male managers, they also have to deal with unique stressors, not borne by most men, which add to the shared job-related stresses and inflict a handicap on women.

Nelson and Hitt (1992) found no differences between male and female professionals in levels of work-home conflict, but they did find that females were more likely to report concerns about organizational politics and lack of career opportunities than men and that these factors were associated with greater levels of distress in women. This theme is echoed by Ruderman, Ohlott, and Kram (1996), who state that in addition to life balance and family demands, promotion and advancement within the organization

seems to be a source of stress more for women than their male counterparts.

Chusmir and Franks (1988) suggest that women face additional stressors that are unknown to men. These include:

1. Role of the token women. Many women are the first in their organization to be moved into a certain management position and must strive to prove to others and herself that the move was because of her abilities and not because of affirmative action quotas. She also has the added pressure to succeed because she is being viewed as a role model by lower ranking women.

2. Conflicting demands of career and family. The notion of the "superwoman" role plays out as managerial women attempt to do everything and to succeed in all roles related to their professional as well as their family life.

3. Social limitations. Interactions with male counterparts in business functions, out-of-town travel, or mentoring relationships become sources of stress for women managers who must be concerned about "appearances."

4. Feelings of isolation. Women managers in the higher ranks of the organization are in the minority and must deal with the stress of operating within a male-dominated environment.

5. Power differences. Women managers must cope with the stereotypes of others in the organization and how they

are viewed in terms of power and their ability to utilize it effectively.

Level in Organization

A number of authors have speculated that level in the organization plays a significant role in the experience of stress, but mixed findings appear in the limited empirical research that has been conducted in this area.

Conceptually, the notion is that middle-level managers are subject to more stress because they are caught in the middle of the mixed demands of their superiors on the one hand and their subordinates on the other (Moss, 1981; Crampton, 1995). Presumably, top-level executives have higher control over their jobs than mid-level managers, and although both may have the same vulnerabilities and similar job demands, their stress reactions and symptoms will be different. Senior-level executives are thus considered to be more stress resistant and are less likely to experience stress because of their autonomy and control (Quick et al. 1990; Sperry, 1993a).

Seemingly contradictory is a recent survey by Sutherland and Cooper (1995) of 118 chief executives, 25% of which believed that they were at "high" or above average risk of job burnout.

Decision making at different levels of the organization has also been viewed as a variable to describe control. Even though job demands are high, the extent to

which individuals can make decisions about how to plan and execute their jobs will determine the extent to which they are stressed. Karasek (1979) claimed that high levels of control buffer the negative effects of highly demanding jobs. According to his model, stress occurs when job demands are high and decision latitude is low. Later studies, however, (Spector, 1987; Perrewe and Ganster, 1989) found no support for Karasek's model. More recently, however, Westman (1992) investigated whether, based on one's organizational level, decision latitude moderates the level of role stress. Comparing managers to their rank-and-file employees, the researcher found a significant differential effect on stress based on hierarchical level. The findings revealed that decision latitude is functionally more useful to lower-echelon employees and provides them with the type of coping resources that they need to overcome stressors. It was speculated in this study that the higher managerial levels had sufficient resources that enable them to cope appropriately.

One of the reasons for the mixed results of findings may be that different levels in the organization experience different types of stress, and the question may be more about what types of stress are experienced at each level rather than about how much. A study by Bednar, Marshall, and Bahouth (1995) investigated work versus nonwork stress and how these categories of stressors were related to nine

characteristics of the managers. Significant results of the Chi-squared test of independence were that middle-level managers, women, and lower-income managers experienced higher perceived stress associated with organizational characteristics at work; and in the nonwork stress areas, women and younger managers reported higher perceived stress.

MBTI Personality Type

A number of studies have been conducted which examine the relationship of personality type, as defined by the Myers-Briggs Type Indicator (MBTI), to stress. Several researchers, (Patterson, 1981; Hammer, 1989; and Davis-Johnson, 1991), however, have focused on how the individual's stress-coping strategies are related to his or her MBTI preferences, and none of these studies has specifically investigated stress from the unique perspective of a managerial population.

Other studies focusing on the MBTI and stress, within a nonmanagerial population, have addressed the role of personality type as a stress moderator (Cooley & Keeseey, 1981; Schneider, 1988; Payne, 1991).

Of most relevance to this paper are several studies that have investigated the role of personality type and its relationship to specific sources of managerial stress.

A study by O'Roark (1986) examined the types of stressors reported as sources of greatest external pressure

and internal strain by groups of managers with different personality types. The subjects were 48 medical center managers, the largest proportion of which were ESTJs.

Stressors were measured by the Job Stress Survey (JSS) (Spielberger, Pate & Grier, 1980), which was developed for multiple occupations such as police, teachers, and business executives. The JSS measures the extent and severity of 30 potential job-related stressors.

The results of the study supported the likelihood of an association between personality type and the experience of stressors. The study attempted to ascertain the amount of stressors and the identification of the specific stressors in terms of the dominant preference type. Findings of the study were that F's had the highest number of reported stressors. In terms of the type of stressors most frequently reported by the various types, the findings revealed that types with T dominant reported lack of opportunity for advancement as the number-one stressor; S dominant types reported insufficient personnel as the greatest source of stress; N dominant types reported excessive paperwork as their greatest stress source; and those with F dominant types reported dealing with crisis situations as the source of greatest stress. It should be noted, however, that the sample for this study, when distributed across the 48 managers, contained only a limited number of types.

Khalsa (1991) investigated the relationship between psychological type and one's experience of stress. The population for the study was made up of 195 city employees, which included, but was not limited to, managers. Subjects were administered the MBTI and the Daily Hassles Scale, an instrument measuring the extent of theoretically predicted stressors for each of the MBTI dimensions. Results revealed stressors do differ according to MBTI type but primarily between introverts and extraverts. Introverts were found to have higher mean ratings of stressors not only for the predicted introvert hassles but also for the stressors predicted for the sensing, intuitive, and perceiving dimensions. In all, introverts rated 21 of the 117 stressors to be significantly more stressful than extraverts rated them. Consistent with theory, introverts rated stressful those items concerning self-expression, inner conflicts, and confrontations with others.

These results seem to support other research (Hammer, 1989) that suggests that introverts have less coping resources than do extraverts. Also, a number of studies on nonmanagerial populations have revealed a similar relationship between introversion and anxiety (Myers & McCaulley, 1985).

The only other significant type difference was found in judging types. Js were more likely to experience predicted judging hassles as stressful. The item

contributing most to this difference was "not enough time to do the things you need to do." This finding is also consistent with research conducted by Bisbee, Mullaly, and Osmond (1982) suggesting that, because Js perceive themselves as responsible and dependable, they might feel more pressure to perform—leading then to increased stress and increased susceptibility to illness.

J. H. Smith (1992) examined senior military officers from the Army War College to determine if differences exist between personality type and self-reported stress, as measured by the Occupational Stress Inventory (Osipow & Spokane, 1987). Out the 193 subjects, 131 were TJ personality types. These were compared against a control group of 62 non-TJ types. The results were mixed, but the study did indicate that TJs self-reported lower stress and strain than the general population reported. This finding seems to confirm the notion that individuals experience less stress when they are in occupational roles of best fit between the person and the organization. (Muchinsky, 1990). A variety of studies have shown that the thinking-judging (TJ) types predominate for business and industry managers and executives. This finding was most recently confirmed by Reynierse (1993). It would follow that those in managerial positions who are not of the TJ type would be expected to experience lesser degrees of stress since they would be in positions of best fit.

In a 1994 study, Fitzgerald investigated how MBTI preferences of 386 mid- to upper-level managers relate to ratings of management skills, occupational stress, and managerial job satisfaction. Stressors were identified by scales in the Occupational Stress Inventory (Osipow & Spokane, 1987). The six categories of potential stressors are: role overload, role insufficiency, role ambiguity, role boundary, responsibility, and physical environment. Fitzgerald found that introverts and perceiving types reported more stress and strain than their opposite types. Subscales correlating with introversion were role insufficiency, role ambiguity, and responsibility. Those scales correlating with perceiving types were role insufficiency, role ambiguity, and role boundary. There was also weak support for the hypothesis that feeling types reported higher scores on the role boundary area of stress. An unexpected finding was that intuitives reported stress in more areas than did sensing types.

Short and Grasha (1995) in a study of 252 first-level corporate managers analyzed the MBTI against the Holistic Stress Test (HST) (Grasha, 1991), an instrument of 185 items measuring stress moderators, stress sources, and coping mechanisms. Two types of analyses were performed. The first, a bivariate correlational analysis, tested 25 predicted relationships between the MBTI dimensions and the HST subscales. The second was a multivariate analysis using

multiple regression in which 14 separate analyses were performed using MBTI types as the independent variables and each of the 14 HST subscales as the dependent or criterion variables. Of interest to this study are the results regarding the HST subscales of stress sources. These five subscales were: work stress, family stress, social stress, environment stress, and life changes.

Results of the zero order correlation yielded only one finding relating to the stress source subscales. This was that introversion was significantly correlated to social stress. Supporting this finding were the results of the multivariate analysis to assess the predictive nature of the MBTI dimensions and stress. Only introversion, which accounted for 22% of the variance, was predictive of social stress.

This clear finding that links introversion and social stress fits conceptually since introverts are more comfortable in the inner work of experience and are expected to feel stress when intruded upon by the outer world. Most notable in this study was the absence of an association between any MBTI dimension and the "work stress" category.

This study, however, was not specifically investigating managerial stress. Although the subjects were managers, the researchers made no conceptual or research links to the subjects' roles as managers and to their

experience of stress. The fact that they were managers appears to be extraneous and simply due to the fact that the data were available from a management training program.

Summary

The establishment of a conceptual model of managerial stress sources seems to be totally in the domain of theoretical or qualitative studies. Only one study (Lee & Ashforth, 1993) was found which attempted to construct an empirically-based model. Within the body of theoretical work on the sources of managerial stress, the literature seems to fall into one of two categories. On the one hand, authors have examined the external forces found in the manager's environment, and most theorists have further subdivided this area into organizational (work) stressors and personal (nonwork) sources of stress. There is striking similarity to the often extensive lists produced in either category, and there does seem to be some clear agreement that the stressors from the work environment include role-based demands, interpersonal conflicts, and organizational factors. Personal factors seem also to be consistently reported around financial, work-home interface, and family concerns.

On the other hand, there is also a recognition among certain theorists that executive stress emanates from forces within the individual. Theories surrounding this psychological approach to executive stressors also have a

great deal of consistency. These theories suggest that the managerial personality, driven by a strong need for power and achievement, also suffers from a darker side made up of fears of success, self-doubt, loneliness, and avoidance of intimacy.

McLean (1984) has suggested that two factors determine whether a stressor will produce a stress reaction or symptom: the context and the particular vulnerability of the individual. The totality of the theoretical writing in the area of managerial stress sources certainly supports this conclusion. The context of the manager can be said to be made up of those external factors emanating from one's work and personal life, and the vulnerability of the manager can be said to be a result of the internal and psychological forces within the individual.

Of the literature reviewed, only one study (Quick et al. 1990) attempted to combine both the external and internal sources of managerial stress into an integrated model. All other theoretical, qualitative, or empirical investigations of the sources of managerial stress have taken a more focused or limited approach.

Empirically derived sources of stress have included role conflict and ambiguity (Kahn et al. 1964), work relationships (Howard et al. 1986; Deluga, 1991), and functional area (Menon & Akhilesh, 1994).

The literature, mostly empirical, which focuses on specific characteristics of managers and their unique stress sources, has been largely concerned with the manager's organizational level, gender differences, and personality type. Findings of studies in these areas are extremely mixed. One study will reveal a specific direct relationship between a characteristic and a stressor, and the next investigation of the same variable(s) often refutes the relationship.

These mixed findings are due largely to a number of conceptual and methodological issues, which are found broadly in the empirical research relating to managerial stress, leading Bunker (1985) to refer to a review of the literature as the "mess of stress." The most consistent problems clouding the studies in this review are as follows:

1. Probably the greatest difficulty lies in the fact that there are no consistent measures of stressors and that the measures vary widely from study to study. Additionally, as noted earlier in this paper, most studies start with a general occupational model of stress sources and one that has not been specifically developed for or normed on a managerial population. Several of these instruments (e.g., the Occupational Stress Inventory and the Job Stress Survey) use constructs that are not relevant to managers.

2. The correlates of reported stress sources also vary widely, making it difficult to compare findings. Most important, because many studies have limited their investigation to a few correlates and may have omitted influential variables, they have led to spurious results. No study in this review has taken a comprehensive set of managerial variables, including demographic, occupational, and personality characteristics, to investigate their relationship to stress sources.

3. Particularly in the literature surrounding gender differences, but also in literature appearing in other studies, the population being studied presents problems. Often the population is defined as "professionals." Although this category includes managers and executives, it also includes others such as lawyers or physicians who may or may not have managerial roles. A second problem associated with the sample population is that a number of studies have had to limit their investigation to the study of male managers because of the lesser proportion of female managers, particularly at the upper levels of management. Finally, some studies have also suffered from rather small sample sizes, making generalization questionable.

4. Many studies have utilized correlational analyses, structural equations, or critical path analyses to examine the complex intercorrelations among a set of variables in the stress process. These methodologies do not permit proof

of causality and, at best, can offer instead causal inferences, which should be further tested.

In conclusion, it was the assumption of this study that the stresses and strains of managerial life are multiple and that it is erroneous to attempt to investigate isolated variables. It is equally fallacious to assume that all managers and executives are alike and therefore experience stress in the same way. No study to date has presented a holistic investigation of the full array of stressors facing managers and executives; nor has there been any empirical research conducted on a comprehensive set of managerial characteristics and how they may relate to the unique stressors reported by a managerial population.

The literature has identified that variables important to consider within this complex of characteristics are gender, organizational level, responsibility for others, and MBTI personality type.

Gender has been demonstrated as a significant consideration when investigating stress in the career development arena as well as stress related to work-family imbalance.

Organizational level and responsibility for others have been shown to influence one's experience of work-related stress.

Regarding the MBTI, introverts have been shown to be more likely to experience stress. It has also been suggested in the literature that persons who do not possess the typical personality profile of a manager (Thinking-Judging types) are also more prone to work-related stress due to a lack of fit.

This study, then, presented a comprehensive taxonomy of the antecedents of managerial stress reported by managers to be pressures that are deep seated and working on them. The study also attempted to describe how a wide range of managerial characteristics (demographic, occupational, and personality) are predictive of those specific sources of stress.

CHAPTER III

Design Statement

This study was made up of two parts, corresponding to the two research questions. The first part identified the specific categories of stressors that define the pressures reported by managers to be deep seated and working upon them. The second part of the study determined the significant managerial characteristics that are predictive of certain categories of reported pressures.

Subjects

The subjects of this study are managers and executives (N=507) who attended a university-sponsored executive development program, the Leadership Development Program, between July of 1994 and December of 1996. The program is held monthly at the University of Maryland and is open to the public for enrollment. Participants of the program typically register themselves or they are registered by their organization as part of that organization's executive development efforts. The objective of the Leadership Development Program (designed by the Center for Creative Leadership, Greensboro, North Carolina) is to help managers and executives become more effective as leaders of their organizations. The subjects represent all participants who attended the program at the University of Maryland over the last two and one half years. A recent Center for Creative Leadership study of over 26,000 participants of the

Leadership Development Program—which includes the population in this study—describes the average participant as white, male, mid- to upper-level manager from the business sector, with an average age of 41 and 16.8 average number of years of schooling (Fleenor, 1995).

Data Source

Data used for the study derive from the existing data base of 507 managers who participated in the Leadership Development Program at the University of Maryland from July 1994 through April 1997. As an integral part of their participation in the seminar, the managers completed an extensive battery of questionnaires, psychological tests, and other managerial assessment instruments. Each participant received a written statement indicating that the data resulting from these tests might be used for research purposes as well as for the purposes of the seminar that they were attending. (See Appendix A.) Selected data from three specific questionnaires in the test battery were used for this study.

Participant Background Form

The Participant Background Form, designed by the Center for Creative Leadership, is used in the seminar to give trainers and psychologists who engage in individual sessions with the participant basic information about the participant. The form is used also to collect information on the managerial population for the research conducted at

the Center for Creative Leadership. The questionnaire is made up of 10 forced-choice items which request basic information about the participant in the areas of demographics (sex, age, race), education (number of years of school, highest degree earned), and organization/occupation (type of organization, organizational level, function, number of employees in organization, compensation level). Three open-ended questions, requesting information on the individual's native country, native language, and country of residence, also are included on the form. A sample of this form is found in Appendix B.

Supplemental Biographical Inventory

The Supplemental Biographical Inventory, a questionnaire also developed by the Center for Creative Leadership for similar purposes as the Participant Background Form described above, provides more in-depth information about the individual program participant so that the psychologist has some insight into the individual prior to their scheduled one-on-one session. The questionnaire is made up of seven pages of 60 open-ended questions and two forced-choice questions. The questionnaire seeks detailed information on the participant's (a) background (birth order, marital status, locale of one's youth), (b) education and training (schools attended, subjects liked best and least, honors),

(c) occupation (current and previous position information such as major responsibilities, typical work hours, direct and indirect reports), (d) general interests (reading material, leisure activities, clubs or organizations, volunteer work), and (e) self-reported descriptive information (self descriptions, others' descriptions, aspects of an ideal job, stressful life events experienced, etc.).

One specific question in this questionnaire serves as the cornerstone of this study. The question to the participant is as follows:

"Digging deep down inside yourself, where only you can see, what pressures would you say are at work on you?"

A sample of the Supplemental Biographic Inventory is found in Appendix C.

Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator (MBTI) is a self-report measure of personality dispositions and preferences based on Carl Jung's theory of psychological type. After more than 50 years of research and development, the current MBTI is used frequently in executive development programs. It provides four bipolar scales that can be reported as continuous scores or reduced to a four-letter code or "type." The MBTI is based on Jung's theories about perceptions and judgement and the attitudes in which these

are used in different types of people. MBTI scales measure a preference for:

1. Extraversion - Introversion (EI). The EI index is designed to reflect whether a person is oriented primarily toward the outer world of people and things (E) or toward the inner world of ideas (I).

2. Sensing - Intuition (SN). The SN index describes an interest in perceiving the objects, events, and details of the present moment (S) or the possibilities, abstractions, and insights imagined in the future (N).

3. Thinking - Feeling (TF). The TF index describes a preference for making rational judgements by using objective and logical analysis (T) or by weighing the merits of issues or personal values (F).

4. Judging - Perceiving (JP). The JP index describes a preference for organizing and controlling events of the outside world (J) or for observing and understanding such events (P).

Resulting combinations of the four dimensions yields sixteen different personality types. These types are described in Table 1:

Table 1

MBTI Personality Types

Type	Description
ISTJ	Introverted sensing with extraverted thinking
ISFJ	Introverted sensing with extraverted feeling
ESTP	Extraverted sensing with introverted thinking
ESFP	Extraverted sensing with introverted feeling
INTJ	Introverted intuition with extraverted thinking
INFJ	Introverted intuition with extraverted feeling
ENTP	Extraverted intuition with introverted thinking
ENFP	Extraverted intuition with introverted feeling
ISTP	Introverted thinking with extraverted sensing
INTP	Introverted thinking with extraverted intuition
ESTJ	Extraverted thinking with introverted sensing
ENTJ	Extraverted thinking with introverted intuition
ISFP	Introverted feeling with extraverted sensing
INFP	Introverted feeling with extraverted intuition
ESFJ	Extraverted feeling with introverted sensing
ENFJ	Extraverted feeling with introverted intuition

In addition to providing the four-letter type, MBTI scoring reports yield a number for each letter. This number represents how consistently a preference was chosen over its opposite.

Technical aspects of the MBTI.

The MBTI instrument used in this study is Form G (Briggs & Myers, 1997), which provides 126 forced-choice items with the first 94 scored and the remaining items used

for research. This form represents the latest restandardization of the instrument. MBTI results are in the form of a letter describing each of the four dimensions and a numerical score indicating the clarity of each dimension. For purposes of this study, the preference scores were converted to continuous scores, in the manner conventional to MBTI research (Myers & McCaulley, 1985). That is, using a theoretical midpoint of 100, the E, S, T, and J scores will be subtracted from 100, and the I, N, F, and P scores will be added to 100.

Validity of the MBTI has been documented by studies relating it to the California Psychological Inventory, SAT performance, Strong Vocation Interest Blank Scales, and the Edwards Personal Preference Schedule. Moderately high and statistically significant correlations exist between the MBTI and another measure of Jungian Theory, the Jungian Type Survey. There is also validity evidence to support that the four MBTI functions manifest themselves in academic and career choice (The Buros Institute of Mental Measurements, 1985).

The test manual (Myers & McCaulley, 1985) for the instrument reveals innumerable correlations of MBTI continuous scores with other personality, interest, and academic tests, such as the Adjective Checklist, the California Psychological Inventory, and the Minnesota Multiphasic Personality Inventory (MMPI). Statistically

significant correlations for each of the four MBTI dimensions are found with interpretable similar scales of other instruments as follows:

1. Extraversion: Range from $-.77$ to $-.40$.
2. Introversion: Range from $.75$ to $.40$.
3. Sensing: Range from $-.67$ to $-.40$.
4. Intuition: Range from $.62$ to $.40$.
5. Thinking: Range from $-.57$ to $-.40$.
6. Feeling: Range from $.55$ to $.40$.
7. Judging: Range from $-.59$ to $-.40$.
8. Perceiving: Range from $.57$ to $.40$.

Reliability data are presented for internal consistency for continuous scores using x and y split-half scores (range from 73 to 92) and co-efficient alpha (range from 64 to 85). Both estimates of internal consistency are acceptable for most adult samples (Myers and McCaulley, 1985).

Studies have been conducted also on the internal consistency of dichotomies, that is, the consistency of remaining in the same type. Data are presented using Phi coefficients (range from 49 to 79) and tetrachoric correlations (range from 66 to 90). The manual suggests that Phi coefficients tend to estimate low; tetrachoric correlations tend to estimate high; and the actual correlations probably fall between the two.

Test-retest reliability data also are presented as product moment correlations of continuous scores: range 45 (4 years) to 93 (4 weeks) and test-retest percentages of agreement for the EI, SN, TF, and JP categories: range 64 (2 years) to 92 (5 weeks).

Procedure and Data Analysis

Content Analysis

The first part of the study was an identification of the categories of deep-seated pressures experienced by managers and executives. These categories were generated through a content analysis of the open-ended question in the Supplemental Biographic Inventory, which states "Digging deep down inside yourself where only you can see, what pressures are at work on you?"

Content analysis is a research technique for making "replicable and valid inferences from data" (Krippendorff, 1980, p 3). The technique is used to code the responses to open-ended survey questions and allows for the reduction of text by classifying it into fewer content categories.

Procedures in the content analysis.

The basic steps in creating and testing a coding scheme have been described by Weber (1985) and were applied in this study as follows:

1. Defining the recording units. The recording unit is the datum of text to be classified. In this study the recording units, as previously stated, are the individual

responses to the open-ended question in the Supplemental Biographic Questionnaire.

2. Defining the categories. This step was accomplished through a test coding on a sample of text. After each subject in the study was assigned an identification number, a computer generated random sample (N=50) was drawn from the total data set. The researcher created and defined categories as they emerged from an analysis of the sample.

3. Test coding on sample of text. The individual items of the sample were coded based on the established classification scheme.

4. Assessment of accuracy or reliability. There are basically three types of reliability designs in a content analysis. The first has to do with stability—the degree to which a process is unchanging over time. In testing for stability the same coder codes the set of data twice, at different points in time. This is the weakest form of reliability and should not be depended upon as the sole indicator of the acceptability of data (Krippendorff, 1980). The strongest measure of reliability in content analysis is accuracy—the degree to which a process conforms to a standard. This measure is accomplished when the performance of a coder is measured against what is known to be the preestablished correct performance. Since such standards are rarely available, this is an unrealistic option. An acceptable reliability test can be accomplished

by the technique of reproducibility—the degree to which a process can be recreated under different conditions and the utilization of two or more coders working independently on the same data. This is the method employed in this study. Reliability, thus, will be expressed as a function of the agreement achieved among coders regarding the assignment of units into categories. For this study, the procedure utilized two independent coders, who were given the listing of categories and their definitions. They were asked to then code the original sample of fifty items. The coders were psychologists who specialize in executive coaching and have extensive knowledge and experience of the managerial population under study. Krippendorff (1980) has found that content analysis correlations among variables with agreements of less than .7 tend to be statistically insignificant. Thus, .7 was the minimum acceptable reliability measure for each variable, and any variables with a lesser reliability measure required revision of the coding categories and a repeat of the reliability testing with independent coders until sufficient reliability standards were met.

5. Coding of entire data. Once such standards were met, the original researcher coded each item of the entire data set according to the established classification scheme.

6. Final reliability test. Since there was a possibility that new categories might emerge as a result of the analysis of the entire data set, a new random sample was drawn and independent coders once again coded a new sample against a final classification scheme to provide for a final reliability measure.

In the process of content analysis, certain decisions were made by the researcher regarding how to process certain responses. The first decision regards the likelihood of multiple responses to the question by one individual. The question asks the respondent what "pressures" (plural) are at work. It is thus inviting multiple responses. Conceptually, there is no reason to believe that managers or executives would have only a single pressure that is causing them stress. Therefore, all responses were included in the data set as unique and separate items.

A second decision is related to a response indicating that the respondent perceives no pressures. Such responses may appear as "none," "not applicable to me," or any similar wording. These responses were categorized as "No pressures" and retained in the data set.

In cases where participants left the question unanswered, these items were considered missing data and dropped from the subject pool.

Logistic Regression Analyses

The second part of the study investigated the relationship between certain demographic, occupational, and personality characteristics of the population and the categories of pressures which were developed from the first part of the study. A logistic regression analysis was employed as the statistical tool to determine if the characteristics are predictive of specific categories of pressures. Logistic regression is a mathematical modeling approach that describes the relationship of several independent variables to a dichotomous dependent variable. The independent variables, totaling 18 in number, were the demographic, occupational, and personality type characteristics which are described and operationally defined in the following section. Because the dependent variables, the categories of pressures, were dichotomous and were scored 0 and 1, a logistic regression analysis was the appropriate statistical approach. A separate logistic regression analysis was carried out for each of the pressure categories, now speculated to be six in number. Results of the analysis were the identification of significant predictors for each of the stressor categories.

Variables

Dependent Variables

The first part of the study essentially created the variables, the categories of pressures, which became the

dichotomous dependent variables in the statistical analysis of the second part of the study. The dependent variables, then, can be defined operationally as the categories resulting from a content analysis of the responses to the open-ended question in the Supplemental Biographic Questionnaire which states, "Digging deep down inside yourself, where only you can see, what pressures would you say are at work on you?"

Hypotheses related to the dependent variables.

Drawing from the theoretical literature as well as the empirical research in the area of managerial stress sources, the researcher suspected the following categories would emerge from the content analysis:

1. Factors intrinsic to the job: lack of "fit," unique work-related problems.
2. Work relationships: conflicts with boss, peers, or subordinates; responsibility for others.
3. Career development factors: fear of job loss, concern for promotion or advancement.
4. Work-family imbalance: conflict over amount of time devoted to the job and to family responsibilities.
5. Personal factors: financial problems, problems with family members, lack of time devoted to self.
6. Internal pressures: fear of failure, lack of self-confidence, drive to succeed.

Independent Variables

Certain demographic, occupational, and personality characteristics of the managerial population were used as the independent variables in the logistic regression analysis. These variables were drawn either from the literature or from the researcher's experience in working with managers. Hair, Anderson, Tatham, and Grablovsky (1979) describe two approaches for selection of independent variables in this type of multivariate analysis. The first approach involves identifying variables either from previous research or from the theoretical model which is the underlying basis of the research question. The second approach is an intuitive one. It involves trying to extend the researcher's knowledge and intuitively selecting variables for which no previous research or theory exists but which logically might be related to predicting the groups for the dependent variable. The selection of the variables for this study was based on a combination of both approaches. The 18 selected variables, or managerial characteristics, were divided into three major themes of demographic, occupational, or personality characteristics.

Demographic characteristics consisted of five variables and were operationally defined as follows:

1. Gender: response to either male or female on the Participant Background Form.

2. Age: response to age (possible range 0-99) on the Participant Background Form.

3. Educational level: response to number of years of school (range 0-99) on Participant Background Form.

4. Marital status: response to forced-choice item on Supplemental Biographic Inventory. Choices include never married, married, separated, and not currently married.

5. Number of children and their ages: response to open-ended question on the Supplemental Biographic Inventory, "If you have children, what are their names and ages?"

The occupational characteristics included five variables, which are operationally defined as follows:

1. Level in organization: response to forced-choice item on Participant Background Form. Choices of responses are: top, executive, upper middle, middle, first level, hourly employees, not relevant in my situation.

2. Number of employees: response to open-ended question on Supplemental Biographic Inventory, "How many people report to you directly? Indirectly?"

3. Compensation: response to forced-choice item on Participant Background Form. The nine possible choices range from below \$25,000 to \$400,000 and over.

4. Organizational budget responsibility: response to open-ended question on the Supplemental Biographic

Inventory, which states "Annual organizational budget for which you are responsible:_____."

5. Years of managerial experience: response to the open-ended question on the Supplemental Biographic Inventory, which states "Total years of management experience:_____."

The personality type variables were derived from the results of the Myers-Briggs Type Indicator. Personality was analyzed in terms of each of the eight separate preferences (e.g., introversion, sensing, thinking, and judging).

Hypotheses related to the independent variables.

Although a large number of hypotheses could have been generated regarding how the eighteen independent variables were related to the six categories of pressures, the following are presented:

H1: Significant predictors of the category of pressures, "Intrinsic to the Job," are personality type (Feeling types and Perceiving types) and organizational budget responsibility (high budget responsibility).

Rationale: Since the personality type of managers and executives has consistently been found to be predominantly Thinking and Judging types (Reynierse, 1993), it is therefore suggested that their opposites, feeling and perceiving, would be more likely to report stress sources intrinsic to the job itself. The work of the manager is very much aligned to the preferences of thinking types,

specifically the use of objective and logical decision making. Judging types also would be similarly attracted to managerial work involving planning, organizing, and controlling the environment. Feeling types, on the other hand, make decisions based on personal values, and perceiving types are most interested in flexibility and keeping options open. Both of these F and P characteristics are not conducive to managerial work, and it is posited that aspects of the job itself would therefore be a source of stress for F and P type managers. This assumption is based on the concept of "person-organization fit" (Levinson, 1981a) and the work of Muchinsky (1990), which suggests a response to poor fit is increased stress and burnout. Although no study in the review of the literature investigated organizational budget responsibility, per se, as a contributor to managerial stress, several authors (Kahn et al. 1964; Glowinkowski & Cooper, 1986; Rahim, 1996) have utilized the construct of role overload, which has to do with excessive job demands brought about by increased job responsibilities. The amount of budget responsibility a manager has is a significant measure of a manager's scope of overall responsibilities, and it is therefore hypothesized that a positive relationship exists between the amount of a manager's budget responsibility and stress related to the job.

H2: Significant predictors of the category of pressures, "Work Relationships," are organizational level (mid-level managers) and number of direct reports (high number of direct reports).

Rationale: Both theoretical and empirical research (Hall & Savery, 1987; Deluga, 1991; Westman, 1992) suggest that mid-level managers are more prone to stress related directly to their work relationships. The fact that these managers have competing demands upward from their subordinates and downward from their superiors, coupled by lesser decision making autonomy, are the major factors contributing to their experience of this type of stress. Additionally, middle-level managers are not as shielded from interactions with others as are those at the executive level (Howard et al. 1986; Quick et al. 1990) and, in fact, these middle-level managers frequently serve as "buffers" from first line managers to upper management, often causing them a considerable source of stress. The number of direct reports for which a manager is responsible is hypothesized also to be a predictor of relationship stress. An early management study by Mintzberg (1973) suggested that managers spend from 40 to 78% of their time in face-to-face contacts and that approximately one third of that time is spent with subordinates. It is intuitively suggested, then, that the greater number of employees a manager is

responsible for would proportionately increase the degree of relationship stress the manager experiences.

H3: Significant predictors of the category of pressures, "Career Development," are age (younger managers) and gender (female managers).

Rationale: Issues of advancement and promotion are particularly salient for younger managers and women managers. A significant source of stress for younger managers is gaining recognition and establishing oneself as a candidate for greater responsibility and as one who has potential for more senior-level positions (Glowinkowski & Cooper, 1986). Women managers, on the other hand, struggle with career development stress related to obstacles to career advancement such as organizational politics (Nelson et al. 1990) and discrimination or stereotyping (Chusmir & Franks, 1988).

H4: A significant predictor of the category of pressures, "Work-Family Conflict," is number of young children (managers with greater number of young children).

Rationale: Several studies have recently indicated that the determinant of work-family conflict for both male and female managers is related to the size of the family, or the number of children at home (Guelzow et al. 1991; Judge et al. 1994). Although no study has defined the age of the children, it is hypothesized that it is the number of young children, as opposed to older children, at home

that contributes to work-family conflict for the manager. This hypothesis is suggested due to the fact that younger children, being more dependent, put additional demands on the parents than do the older children.

H5: Gender is not a significant predictor of the category of pressures, "Work-Family Conflict."

Rationale: Although there have been mixed findings in the research regarding the question of gender differences and stress, most current studies (e.g., Nelson et al. 1990; Erickson, 1995) support that women and men are more alike than not in their experience of work-family stress. The changing nature of the workforce, the increased numbers of dual-career marriages, and the changing socialization of males resulting from the women's movement has led to a wider acceptance of the notion that male managers are not exclusively preoccupied with work and have become equally affected by the stress and demands of work and family balance.

H6: Significant predictors of the category of pressures, "Personal Factors," are marital status (married managers) and compensation (lower income managers).

Rationale: Issues related to personal stress include marital problems, family concerns, financial worries, and health concerns. Of the studies under review, only Sperry (1993b) and Quick et al. (1990) address the import and impact of personal stressors on managers and executives. It

is intuitively hypothesized that managers who are married and managers who have lower compensation would be likely to report these personal issues as sources of stress. Married managers are more likely to have complex relationships, responsibilities, and financial obligations, and lower salaried managers are more likely to be subject to pressures that could be alleviated by increased income, such as financing of children's education.

H7: Significant predictors of the category of pressures, "Internal Pressures," are personality type, (introverts) and gender (male managers).

Rationale: According to theory, introverts are introspective and soul-searching individuals (Myers, 1993). They also have been shown to be, of all MBTI types, the most prone generally to stress. (Khalsa, 1991; Fitzgerald, 1994). It is thus hypothesized that introverts would be likely to report stressors that relate to internal dynamics, fears of success, and questions of self-doubt. Most of the writing on the subject of psychological needs around achievement, drive, and mastery have been based on anecdotal studies or biographic research of males (Kaplan, 1991; Meth & Pasick, 1990) largely because of a lack of females in management or executive roles. It is hypothesized, however, that achievement and success in one's career are still salient indicators of one's self-worth for males, and internal doubts and fears relating to

one's ability to meet societal expectations are strong contributors to stress for male managers.

Summary

In summary, the design and proposed outcomes of this study are portrayed in Table 2 and Table 3:

Table 2

Research Design of the Study

Research Question	Methodology	Data Source
What are the underlying themes or dimensions that make up the pressures facing managers and executives?	Content Analysis	Open-ended question on the Supplemental Biographic Inventory
How do selected population characteristics relate to a specific category of pressures?	Logistic Regression Analyses	Dependent variables: Coded categories derived from content analysis Independent Variables: Participant Background Form, Supplemental Biographic Inventory, and MBTI results

Table 3

Hypothesized Relationships of Variables

Pressure Category	Significant Predictors
Intrinsic to job	MBTI feeling/perceiving types High budget responsibility
Work relationships	Middle-level managers High number of direct reports
Career development	Female managers Young managers
Work-family imbalance	Number of young children Gender (not a significant predictor)
Personal	Marital status Low compensation
Internal	MBTI introverted types Male managers

CHAPTER IV

Results

Content Analysis

An initial sample, referred to as Sample 1, of 50 subjects was drawn from a published table of random units. A total of 68 recording units were reported by the sample population. A content analysis of the sample resulted in the creation of six categories. These are as follows:

1. Factors intrinsic to the job: Concerns regarding work results, problems of organizational change, work relationships, or unique work-related problems.
2. Career development: Concerns about job security or promotion and advancement.
3. Work-family imbalance: Conflict over amount of time devoted to the job and to personal or family responsibilities.
4. Personal factors: Financial problems, problems with family members, unique personal situations.
5. Need to achieve: Need to be successful, to be respected by others, to live up to the expectations of others.
6. Fears and inadequacies: Fear of failure, lack of self-confidence, doubt about one's competence.

The categories derived from the sample were initially the same as those hypothesized in Chapter III. Based on the initial content analysis of the sample, however, two

changes were made to the list. First, the hypothesized category "work relationships" received only one response and was thus combined into the category of "factors intrinsic to the job." Second, the last hypothesized category of "internal pressures" was disproportionately large, representing 44% of the sample. The category was thus partitioned into two more specifically defined categories of internal pressures—"need to achieve" and "fears and inadequacies." Table 4 describes the distribution of resulting categories in Sample 1.

Table 4

Sample 1 Categories

Category	Number	Percentage
Intrinsic to Job	5	7
Career development	5	7
Work-family imbalance	13	19
Personal	15	22
Need to achieve	18	26
Fears and inadequacies	12	18

Two independent raters, psychologists with lengthy experience in executive development, sorted the 68 recording units into the six categories. Results of the raters' responses revealed a reliability of .87 and .74 for the total data set. Reliability for each of the categories ranged from .6 to 1.0. These data are presented in Table 5.

Table 5

Rater Agreement from Sample 1

Category	Rater 1	Rater 2	Mean
Intrinsic to job	1.00	.75	.88
Career development	.80	.60	.70
Work-family imbalance	.92	.85	.88
Personal	.93	.93	.93
Need to achieve	.83	.72	.78
Fears and inadequacies	.83	.75	.80
Total sample	.87	.74	.80

Using then, the preceding six categories, the data from the total population of 507 subjects (637 recording units) were analyzed. Results of this analysis yielded seven categories. The category "personal factors" was sufficiently large that it was collapsed into two more specific categories—"family and financial" and "self factors." The definition of the category "balance" was broadened to include concerns over the use of time as well as specific concerns regarding amount of time devoted to work versus family or personal responsibilities. The final set of categories and their definitions are as follows:

1. Factors intrinsic to the job: Concerns regarding work results, problems of organizational change, work relationships or unique work-related problems.

2. Career development: Concerns about job security or promotion and advancement.

3. Balance: Concern over use of time, conflict over amount of time devoted to the job and to personal or family responsibilities.

4. Family and financial: Financial concerns, family problems or concerns over the future and well-being of family members, desire to be a good provider and to be a good parent and/or family member.

5. Self factors: Existential or spiritual struggles, desire for personal happiness, desire for meaningful life and relationships, unique personal problems.

6. Need to achieve: Need to be successful, to be respected by others, to live up to the expectations of others.

7. Fears and inadequacies: Fear of failure, lack of self-confidence, doubt about one's competence.

A final validation of these categories was achieved by a second random sample of 50 subjects, who reported a total of 73 pressures. The same two independent raters were given this second sample and asked to sort them into the final seven categories listed above.

The distribution of the Sample 2 items are displayed in Table 6.

Table 6

Sample 2 Categories

Category	Number	Percentage
Intrinsic to Job	9	12
Career development	9	12
Balance	11	15
Family/financial	9	12
Self factors	12	17
Need to achieve	12	17
Fears and inadequacies	10	14

It should be noted that in the total analysis of the 507 subjects, there were 13 responses which fit in no category because the responses reflected satisfaction with life or specifically stated that he/she was experiencing no pressures. One response in Sample 2 was from this group.

Raters' responses for Sample 2 are displayed in Table 7. A reliability of .78 and .75 was achieved for the total data set and a range of .64 to 1.0 was found for individual categories.

Table 7

Rater Agreement from Sample 2

Category	Rater 1	Rater 2	Mean
Intrinsic to job	.67	.78	.73
Career development	.78	.67	.73
Balance	1.00	.64	.82
Family/financial	.67	.89	.78
Self factors	.75	.83	.79
Need to achieve	.75	.75	.75
Fears and inadequacies	.70	.70	.70
Total sample	.78	.75	.76

The results of the content analysis thus yielded seven validated categories. Table 8 presents the population distribution of each of the final categories.

Table 8

Final categories

Category	Number	Percentage
Intrinsic to Job	85	13
Career development	53	8
Balance	94	15
Family/financial	108	17
Self factors	60	9
Need to achieve	141	22
Fears and inadequacies	83	13
None	13	2

Summary of Results Related to the Research Hypotheses

Based on a review of the literature, six categories were hypothesized. (See Chapter III). The results of each hypothesized category were summarized as follows:

1. Intrinsic to job: This category remained as one of the final categories.

2. Work relationships: The number of items in this category was too small to merit a separate category, and the items were incorporated into the category "intrinsic to job."

3. Career development: This category remained as one of the final categories.

4. Work-family imbalance: This category was renamed "balance" and was redefined to include concerns over usage of time in general, in addition to concerns over amount of time devoted to the job and to family or personal responsibilities.

5. Personal factors: Because of the large number of items in this category (n=168), two subcategories of personal factors were created. These new categories are "family/financial" and "self factors."

6. Internal pressures: This hypothesized category was also very large (n=224) and was collapsed into two smaller categories "need to achieve" and "fears and inadequacies."

In summary, of the six hypothesized categories, three remained the same in the final analysis; one was dropped;

and two were expanded into subcategories, yielding a final set of seven categories from which the quantitative analysis could be conducted in Part Two of the study.

Expanded Categories Derived from Content Analysis

In addition to serving as a basis for the quantitative analysis, the first part of the study involving the content analysis was also conducted in order to conceptualize the pressures facing managers and executives. The seven categories were further analyzed and placed into a more detailed taxonomy to gain clarity beyond the broader definitions of the categories utilized for the quantitative analysis. This taxonomy starts with the seven major categories and provides subcategories within each major heading. The results of this classification are as follows:

Factors intrinsic to the job.

Within the category "factors intrinsic to the job," three major themes were delineated. The first included items associated with coworkers and with the manager's organizational climate. The largest number of responses in this area described problems with one's boss. Common responses were that the boss was too demanding, that there was a lack of trust or respect for the superior, or that the superior was extremely difficult to work with.

Somewhat related to the mistrust of one's superior was the common theme of company or organizational politics as a source of deeply felt stress among the respondents. Common

responses in this area had to do with distress over having to play certain political "games" and over pressure to conform to the culture of the organization.

Relationships with subordinates was also a concern that was frequently cited. The major issues with subordinates were the typical managerial responsibilities of keeping subordinates motivated and happy, helping them succeed, keeping peace, and making up for their inabilities.

Only two respondents made reference to difficulties with peers.

A second major theme under the category of "factors intrinsic to the job" had to do with organizational change. Although most managers and executives responded that they were pressured by change in general, others were more specific regarding the type of change that was causing them stress. Stress was due to the consequences of a recent downsizing, the problems of assuming a new position or new responsibilities, the fear of a looming shutdown, or the dissolution of a division or work group.

A final category of job-related stresses and also the largest number of responses in this category had to do with the stress of multiple job responsibilities and productivity demands. Doing more with less was the most common theme in this category. Inordinate workloads, unrealistic expectations in terms of deadlines, and

constant pressure to cut or hold costs with less or no additional resources were situations that were frequently cited. Factors that take the manager's focus away from productivity and results were also mentioned. These included interdepartmental problems, constant interruptions, and the pressure of keeping oneself up-to-date with latest skills and knowledge in order to be most effective.

Career development.

The category of responses surrounding career development concerns represented 8% of the total responses. The items were further subdivided into three main areas. The first and largest subcategory included items related to concerns about one's job security, concerns over holding on to one's job, and concerns over one's ability to find another job should he/she lose the current one. These concerns all seem to surround the notion of a very unstable and tenuous corporate context of restructurings, mergers, and downsizings.

Another career development concern had to do with promotion or advancement. The desire to move ahead and up the career ladder is complicated by the knowledge that competition is extremely fierce and that the higher one advances the fewer slots are filled by only the most competent. Concerns about career progression, therefore,

also included issues of insecurity about having the "right stuff" and about the stress of competing with coworkers.

A final set of pressures in the career development arena was related to personal reactions to one's future and career status. A significant number of responses had to do with ambivalence or dissatisfaction about one's career choice and the direction of one's career. The cause of stress in this area, however, was that the dissatisfaction with career choice was coupled with the notion that respondents were not sure of what they wanted for themselves in terms of their career direction. They simply knew that dissatisfaction existed, but they reported a great deal of uncertainty about what they really wanted to do with their professional life.

Balance.

Items related to life balance represented 15% of the responses. These items reflected a great deal of similarity and little variety in theme. The competing time demands of being successful at the job and also giving one's all to the family was the most consistent theme in this category. Accompanying this notion of balancing the conflicting demands of job and family was the sense of guilt that, in fact, the job in most cases had taken precedence over family, and the concern was over the impact this choice has had on the family. This conflict was not simply regarding the demands of raising children, but there was also a

concern for neglecting one's spouse and for the impact on the marital relationship.

A second theme that was revealed in the category of "balance" was the issue of time in general. A number of responses suggested that time is the enemy and that even if one were able to meet the excessive demands at work and have time for family, there was still never any time left over for oneself. Several responses suggested other issues of balance—the sacrifices of relaxation, social activities, spiritual growth, and fulfilling personal hopes and dreams. A related issue also reported was that this lack of congruence between personal and work and family life gave one the sense of being out of control.

Family and financial.

This category was second to the largest, representing 17% of the total responses. Although the category seemingly represents two separate sources of stress, one family and the other financial, the two themes were intricately linked with each other. A few responses simply stated financial concerns without elaboration; by far, the responses that did elaborate suggested that the financial concerns were centered around supporting the current family and/or providing for the family's future financial security. Current financial concerns were related to either providing everything that the family needs, maintaining the current standard of living, or sustaining a young family.

Interestingly, the responses regarding financial pressures were expressed as an immense burden and as an overwhelming responsibility. Financial pressures concerning the future were largely concerns for sound economic security for the family, children's college education, and retirement.

Specific family problems centered around the notion of being caught in the middle of generations. Specific problems related to the children were fewer than concerns about the marital situation and about the fears and issues dealing with aging parents. In addition to feeling the pressures and responsibilities of the immediate family, several responses indicated that because they were perceived as the most successful, additional pressure existed in the form of responsibility for siblings and extended family members.

The third theme within the category of financial and family pressures related to one's extreme sense of responsibility to be the best family member (to parents, spouses, children, and others) that one can be. Closely connected to this theme were worries over the future of children and whether one was doing everything right as a parent. Frequent doubts were expressed about providing proper guidance or direction and making the right decisions for children to live happy and successful lives themselves.

Self factors.

The category of self factors represented 9% of the total items. Within the category, three main themes emerged.

The largest subset within the category was a cluster of items having to do with existential issues, questions of the meaning of life, and a strong desire to be fulfilled, happy, and at peace. Religious or spiritual issues were also raised as "drives" to live one's life differently. There was a real sense of a lack of direction and uncertainty about the purpose of life, combined with a sense of urgency—that time was running out and doubting whether one would know the answers to these life questions and have enough time to live in a meaningful and fulfilling way.

A number of responses also referred to loneliness and a recognition that one's career would not fill the void. Several respondents mentioned a need for meaningful relationships, not only a love interest but also a desire for friends.

A second theme was related to the pressures of daily living in the manager's life. Frequently mentioned items had to do with the stress of part-time graduate work (both master's level and doctoral level), commuting to work, and the burden of moving and relocating to a new area.

A final theme in this category were personal concerns having to do with health, weight and body image, concerns over aging, and personal decisions regarding having children. Four individuals mentioned the stress of belonging to a minority group and having to cope with overt prejudice.

Also included in this category were eight items so uniquely individual that no other response was similar in content. Examples of such items were "Pressure to change my style to be more feminine" and "Lots of baggage from childhood."

Need to achieve.

This was the largest category, representing 22% of the items. There was very little variability in the theme of an intense desire to succeed and to be the best. This drive to excel was not limited to the area of work or career. It was very clear that the need to excel was in all areas of the manager's life, personally as well as professionally. A common response was to "be all things to all people." A few even suggested that their need to be the best went beyond their own experience and was coupled with a desire to make a "mark on the world" or to make a contribution to society. Among the responses there was also a theme of competition. Not only was it necessary to excel, one had to be better than any one else. Personal performance standards were repeatedly acknowledged as the force that propelled this

high need for success. Perfectionism was frequently mentioned as well as a constant need to improve oneself and outdo any previously attained achievements.

In addition to proving to oneself, there was also a related theme of a compelling drive to live up to the expectations of others and not to disappoint anyone. The others were either one's parents, one's spouse and children, one's friends and those at work, one's senior management, or one's superior, peers, and subordinates. A number of responses suggested that achievement, pleasing everyone, and doing the "right" thing were in order to have people hold one in high regard. In fact, public recognition, as well as respect by coworkers and family members, were mentioned as a form of acceptance and a way of validating one's own self-esteem and worth.

Fears and inadequacies.

The final category of pressures represented 13% of the responses and, like the previous category, were made up of psychological or internal forces at work on the managers. This final category was subdivided into three main themes.

The first theme and the largest number of responses within the category was related to self-doubt, a lack of self-confidence, and self-perceptions of one's competence. Responses ranged from concerns about constantly comparing oneself to others and not being able to "measure up," to worries that not enough has been achieved, to the fear that

something was lacking that was needed in order to be successful. There was a consistent theme of being unforgiving of oneself and that whatever was done, it wasn't good enough. Interestingly, several responses also indicated a fear of being "found out." There was also an expression of fear over the fact that one's potential had been reached and worry about succeeding at the next level, the next assignment, or next project.

A second theme was repeatedly described as a fear of failure. In addition to not living up to the standards of success was the fear of rejection that comes with failure. The fear of failure seemed to be connected to the notion of living a life of mediocrity and to an inability to meet obligations. Most of the items having to do with this fear of failure were in reference to one's career accomplishments, and few mentioned a fear of failing in other life arenas, although the failing in work sometimes was combined with the fear of cheating the family of the benefits of a more successful life.

The last theme in this category was a series of specific personal weaknesses which the respondents found stressful. These included feelings of inadequacies around interpersonal skills, overcoming shyness and social insecurities, impatience, being overly critical, too serious, and a feeling of lacking in principles.

Summary

In summary, Table 9 outlines the expanded categories and provides a conceptual model of the pressures that are experienced by managers and executives today.

Table 9

Outline of Expanded Categories of Managerial Pressures

I. Factors intrinsic to the job

A. Coworkers and organizational climate

1. Relationship with boss
 - a. Boss too demanding
 - b. Lack of trust or respect for boss
 - c. Boss difficult to work with
2. Company politics
 - a. Political game playing
 - b. Pressure to conform to culture
3. Relationship with subordinates
 - a. Keeping subordinates motivated
 - b. Resolving conflicts
 - c. Subordinates lacking skills/ability to do the job.

B. Organizational change

1. Downsizing
2. New position
3. Fear of imminent shutdown

C. Job responsibilities

1. Multiple tasks

2. Lack of resources
3. Budgetary constraints
4. Productivity demands
5. Obstacles to accomplishing work
 - a. Interdepartmental problems
 - b. Interruptions
 - c. Keeping up-to-date

II. Career development

- A. Job security
 1. Fear of unemployment
 2. Pressure to "maintain an edge"
 3. Ability to find another job, if unemployed
- B. Career advancement
 1. Competition among peers
 2. Scar of promotion opportunities
 3. Having the qualities necessary to be promoted
- C. Career indecision and dissatisfaction
 1. Dissatisfaction with career choice
 2. Uncertainty about desires for career future

III. Balance

- A. Conflict between job and family demands
 1. Guilt over job taking precedence
 2. Concern over impact on family members
 - a. Children
 - b. Spouse

- B. Lack of time for self
 - 1. Relaxation and sports
 - 2. Social activities
 - 3. Spiritual growth
 - 4. Meeting personal goals
 - C. Sense of being out of control
- IV. Family and financial
- A. Financial concerns
 - 1. Supporting current family structure
 - a. Providing for daily needs
 - b. Maintaining current standard of living
 - c. Sustaining a young family
 - 2. Providing for future of family
 - a. Economic security
 - b. Children's college education
 - c. Retirement
 - B. Family concerns
 - 1. Problems with children
 - 2. Marital relationship
 - 3. Caring for aging parents
 - 4. Responsibility for extended family
 - C. Succeeding in family role
 - 1. Desire to be effective role model
 - 2. Concern for children's future
 - 3. Concern about adequacy of parental role

V. Self factors

A. Questions of life

1. Need to be fulfilled, happy, and at peace
2. Spiritual needs
3. Doubts about meaning of life
4. Notion of time running out
5. Loneliness
 - a. Recognition that career is not enough
 - b. Desire for loving relationship
 - c. Desire for friends

B. Daily hassles

1. Part-time graduate work
2. Commuting
3. Moving and relocating to new area

C. Personal concerns

1. Health
2. Weight problems
3. Aging
4. Decision to have children
5. Prejudice

D. Uniquely individual pressures

VI. Need to achieve

A. To excel in all areas

1. Personal/family
2. Professional
3. Contribute to society

- B. To be better than others
- C. Perfectionism
- D. Living up to others' expectations
 - 1. Fear of being a disappointment
 - a. To family and friends
 - b. To coworkers
 - 2. Need to achieve recognition

VII. Fears and inadequacies

- A. Lack of self-confidence
 - 1. Comparisons to others
 - 2. Not achieving self-imposed standards
 - 3. Fear of being exposed as incompetent
 - 4. Fear that potential has been reached
 - B. Fear of failure
 - 1. Fear of rejection by others
 - 2. Fear of living a mediocre life
 - 3. Work and career centered
 - C. Personal weaknesses
 - 1. Interpersonal inadequacies
 - a. Social presence
 - b. Overly critical
 - 2. Lacking in principles
-

Quantitative Analysis

Part Two of the study was a quantitative analysis of the data. The purpose of this analysis was to specifically identify any managerial characteristics that may be predictive of the seven categories of pressures reported by the managers in the study.

Description of the Population

The population for the study consisted of 504 subjects. Three subjects' data were dropped from the data set as explained later. In terms of demographic characteristics, 67% were male and 33% were female. Age of the subjects ranged from 26 to 63 years, with the average age being 41.44 years. Education level was an average of 17.29 years of education, slightly more than one year of graduate school. A total of 78% were married, and 22% were either single, separated, or divorced. The largest percentage of the population (46.5%) had two children.

With regard to occupational characteristics, the largest proportion of the population (42.7%) were in the upper-middle level in managerial rank, with an average of 11.2 years of managerial experience. The number of direct reports ranged from 0 to 50 and averaged 6.7, whereas the number of indirect reports ranged from 0 to 3000 and averaged 175.8. With regard to compensation, including commissions, bonuses, etc., the largest percentage of the subjects (35%) were in the category of \$75,000 to \$99,000.

The median in organizational budget responsibility was \$3,750,000. Detailed statistics on the demographic and occupational characteristics of the population are found in Appendix D.

The population in terms of MBTI type were almost evenly distributed along the Extraversion-Introversion dimension and the Sensing-Intuition dimension. Clear differences appeared in the other two dimensions. On the Thinking-Feeling dimension, a total of 83.7% were Thinking types and 16.3% were Feeling types. On the Judging-Perceiving dimension, a total of 69.8% were Judging types and 30.2% were Perceiving types.

The most frequent four-letter type was the ISTJ, representing 19.25% of the total, and the type with the least representation was the ISFP type, representing less than 1% of the subjects. A detailed distribution of the MBTI preferences and types is found in Appendix E.

Adjustments to the Variables

As a first step in the data analysis, certain adjustments were required of the variables in order to permit the analysis. The first of these adjustments was the exclusion of three subjects who had reported unusual responses to the item regarding number of direct reports. These three individuals reported numbers inordinately high (in the hundreds). It was suspected that their responses were regarding the number of total employees, not direct

reports. It was therefore decided to remove their data from the subject pool. With these exclusions, the population numbered 504 subjects.

The variables regarding the number of children and their ages were also problematic because of the large number of subjects who left these items blank. Since the one variable, children between 0 and 5 years, was of particular import to one of the hypotheses, it was adjusted to a dichotomous variable (presence of children aged 0-5 versus no children aged 0-5). All other variables relating to children of other age groups were dropped from the analysis.

The variable regarding total budget responsibility was also eliminated from the analysis. Although this was a critical variable from the point of view of one of the hypotheses, there was a total count of 141 blank or missing responses to this item. It was not viable to reduce the data set by 141 subjects and still conduct the analyses. Thus, there was no solution but to drop the variable from the analysis, recognizing that no information would be obtainable about budget responsibility in the study.

A final adjustment to the variables was to eliminate the variables from the statistical model to only those that were relevant to the hypotheses. It was not possible to run an analysis based on a statistical model with all the original independent variables. This was because of the

large number of parameters in the model, specifically seven dependent variables—the pressure categories—and the fourteen independent variables, many of which were categorical and contained several levels. A much larger population would have been required to accommodate the original set of variables. Thus, to minimize the parameters, only those variables relating to the hypotheses were retained in the analysis. These variables were as follows: gender, age, organizational level, compensation, marital status, children aged 0-5, number of direct reports, and the four MBTI continuous scales (Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, and Judging-Perceiving). The variables that were not specifically related to hypotheses and by necessity had to be eliminated in order to add power to the statistical model were: education level, number of children of age groups other than 0-5, number of indirect employees, and years of managerial experience.

Bivariate Analyses

The first statistical analysis performed was a bivariate analysis of each of the variables against each of the pressure categories. The purpose of this initial analysis was to gain an understanding of how each variable related to the primary outcome variable when considered alone. Thus, seven different bivariate procedures were conducted for each of the eleven independent variables. For

the categorical variables, a chi-square statistic testing the null hypothesis that the variable has no association with the pressure variable was tested. For the two continuous variables, specifically age and number of direct reports, a t-test procedure was conducted. This analysis was to test the null hypothesis that no difference existed between the means of the groups (those reporting a pressure versus those not reporting a pressure).

Tables 10 and 11 display the results of the bivariate analyses. A detailed summary of the bivariate procedures can be found in Appendix F and G.

Table 10

Summary of Bivariate Analyses - Categorical Variables

1. Gender			
	Male	Female	p-value
Percent Reporting Pressure 1 (Job)	19.4	12.27	.047
Percent Reporting Pressure 2 (Career Development)	11.34	8.59	.346
Percent Reporting Pressure 3 (Balance)	15.22	26.38	.003
Percent Reporting Pressure 4 (Family/Financial)	24.18	14.72	.015
Percent Reporting Pressure 5 (Self)	10.45	14.72	.166
Percent Reporting Pressure 6 (Need to Achieve)	25.67	32.52	.110
Percent Reporting Pressure 7 (Fears & Inadequacies)	15.52	17.79	.520
2. Children Aged 0-5			
	No	Yes	p-value
Percent Reporting Pressure 1 (Job)	19.94	10.00	.014
Percent Reporting Pressure 2 (Career Development)	9.82	12.50	.412
Percent Reporting Pressure 3 (Balance)	16.37	20.00	.367
Percent Reporting Pressure 4 (Family/Financial)	18.50	30.83	.004
Percent Reporting Pressure 5 (Self)	12.50	8.33	.218
Percent Reporting Pressure 6 (Need to Achieve)	25.89	29.17	.487
Percent Reporting Pressure 7 (Fears & Inadequacies)	16.96	15.00	.618

Note: Bold type indicates $p \geq .05$

 3. Organizational Level

	Executive	Upper Middle	Middle	First level	p- value
Percent Reporting Pressure 1 (Job)	17.39	16.98	16.67	22.22	.948
Percent Reporting Pressure 2 (Career Development)	8.70	10.38	12.07	5.56	.742
Percent Reporting Pressure 3 (Balance)	21.74	19.81	17.24	11.11	.655
Percent Reporting Pressure 4 (Family/Financial)	18.48	19.81	23.56	27.78	.636
Percent Reporting Pressure 5 (Self)	7.61	14.15	12.07	5.56	.342
Percent Reporting Pressure 6 (Need to Achieve)	26.09	29.72	27.59	16.67	.651
Percent Reporting Pressure 7 (Fears & Inadequacies)	21.74	14.62	13.79	27.78	.172

 4. Compensation

	Below 75,000	75,000- 99,999	100,000- 124,999	Over 125,000	p- value
Percent Reporting Pressure 1 (Job)	20.78	10.06	23.08	15.49	.019
Percent Reporting Pressure 2 (Career Development)	9.74	11.83	13.19	5.63	.407
Percent Reporting Pressure 3 (Balance)	12.99	22.49	20.88	19.72	.157
Percent Reporting Pressure 4 (Family/Financial)	24.03	18.34	19.78	23.94	.575
Percent Reporting Pressure 5 (Self)	14.29	9.47	17.58	5.63	.065

Note: Bold type indicates $p > .05$

4. Compensation					
	Below 75,000	75,000- 99,999	100,000- 124,999	Over 125,000	p- value
Percent Reporting Pressure 6 (Need to Achieve)	21.43	36.09	24.18	29.58	.024
Percent Reporting Pressure 7 (Fears & Inadequacies)	18.18	14.79	16.48	16.90	.877
5. Marital Status					
	Married	Single	p-value		
Percent Reporting Pressure 1 (Job)	16.79	17.27	.906		
Percent Reporting Pressure 2 (Career Development)	11.96	5.45	.050		
Percent Reporting Pressure 3 (Balance)	19.34	15.45	.354		
Percent Reporting Pressure 4 (Family/Financial)	23.66	11.82	.007		
Percent Reporting Pressure 5 (Self)	9.92	19.09	.009		
Percent Reporting Pressure 6 (Need to Achieve)	26.72	32.73	.215		
Percent Reporting Pressure 7 (Fears & Inadequacies)	16.28	17.27	.805		
6. MBTI (E-I dimension)					
	Extra- verts	Intro- verts	p-value		
Percent Reporting Pressure 1 (Job)	19.37	14.34	.132		
Percent Reporting Pressure 2 (Career Development)	10.67	10.36	.909		
Percent Reporting Pressure 3 (Balance)	18.97	18.33	.852		

Note: Bold type indicates $p \geq .05$

6. MBTI (E-I dimension)			
	Extra-verts	Intro-verts	p-value
Percent Reporting Pressure 4 (Family/Financial)	21.34	20.72	.863
Percent Reporting Pressure 5 (Self)	13.04	10.76	.428
Percent Reporting Pressure 6 (Need to Achieve)	26.88	29.08	.581
Percent Reporting Pressure 7 (Fears & Inadequacies)	15.42	17.53	.522
7. MBTI (S-N dimension)			
	Sensing	Intuition	p-value
Percent Reporting Pressure 1 (Job)	20.08	13.85	.062
Percent Reporting Pressure 2 (Career Development)	12.30	8.85	.207
Percent Reporting Pressure 3 (Balance)	18.03	19.23	.730
Percent Reporting Pressure 4 (Family/Financial)	21.72	20.38	.711
Percent Reporting Pressure 5 (Self)	11.07	12.69	.573
Percent Reporting Pressure 6 (Need to Achieve)	25.82	30.00	.296
Percent Reporting Pressure 7 (Fears & Inadequacies)	14.75	18.08	.315
8. MBTI (T-F dimension)			
	Thinking	Feeling	p-value
Percent Reporting Pressure 1 (Job)	17.30	14.63	.555
Percent Reporting Pressure 2 (Career Development)	10.66	9.76	.806
Percent Reporting Pressure 3 (Balance)	18.01	21.95	.402

Note: Bold type indicates $p \geq .05$

8. MBTI (T-F dimension)			
	Thinking	Feeling	p-value
Percent Reporting Pressure 4 (Family/Financial)	22.04	15.85	.209
Percent Reporting Pressure 5 (Self)	11.37	14.63	.404
Percent Reporting Pressure 6 (Need to Achieve)	28.20	26.83	.800
Percent Reporting Pressure 7 (Fears & Inadequacies)	15.88	19.51	.417
9. MBTI (J-P dimension)			
	Judging	Perceiving	p-value
Percent Reporting Pressure 1 (Job)	17.33	15.79	.672
Percent Reporting Pressure 2 (Career Development)	10.51	10.53	.996
Percent Reporting Pressure 3 (Balance)	18.47	19.08	.871
Percent Reporting Pressure 4 (Family/Financial)	21.88	19.08	.480
Percent Reporting Pressure 5 (Self)	10.51	15.13	.142
Percent Reporting Pressure 6 (Need to Achieve)	28.13	27.63	.910
Percent Reporting Pressure 7 (Fears & Inadequacies)	16.76	15.79	.787

Note: Bold type indicates $p \geq .05$

Table 11

Summary of Bivariate Analyses - Continuous Variables

1. Age	Mean N	Mean Y	p-value
Percent Reporting Pressure 1 (Job)	41.06	43.31	.005
Percent Reporting Pressure 2 (Career Development)	41.61	40.02	.106
Percent Reporting Pressure 3 (Balance)	41.58	40.87	.359
Percent Reporting Pressure 4 (Family/Financial)	41.50	41.23	.715
Percent Reporting Pressure 5 (Self)	41.49	41.08	.662
Percent Reporting Pressure 6 (Need to Achieve)	41.87	40.32	.021
Percent Reporting Pressure 7 (Fears & Inadequacies)	41.43	41.52	.915
2. Direct Reports			
Percent Reporting Pressure 1 (Job)	6.42	7.98	.097
Percent Reporting Pressure 2 (Career Development)	6.69	6.63	.947
Percent Reporting Pressure 3 (Balance)	6.80	6.20	.433
Percent Reporting Pressure 4 (Family/Financial)	6.85	6.10	.237
Percent Reporting Pressure 5 (Self)	6.72	6.45	.775
Percent Reporting Pressure 6 (Need to Achieve)	6.94	6.02	.130
Percent Reporting Pressure 7 (Fears & Inadequacies)	6.76	6.31	.481

Note: Bold type indicates $p \geq .05$

As a result of the bivariate procedures, twelve significant relationships were found. These are as follows:

1. Gender and the pressure category "intrinsic to the job." Data indicate that males report this category of pressures more than do females.

2. Gender and the pressure category "balance." Data indicate that females report this category of pressures more than do males.

3. Gender and the pressure category "family and financial." Data indicate that males report this category of pressures more than do women.

4. Children aged 0-5 and the pressure category "intrinsic to the job." Data indicate that those who do not have children aged 0-5 report this category of pressures more than those who do not have children aged 0-5.

5. Children aged 0-5 and the pressure category "family and financial." Data indicate those who have children aged 0-5 report this category of pressures more than those who do not have children aged 0-5.

6. Compensation and the pressure category "intrinsic to the job." Data indicate that those who have income between \$100,000 and \$124,000 report this category of pressure more than those who are in other income brackets.

7. Compensation and the pressure category "need to achieve." Data indicate that those who have income between

\$75,000 and \$99,999 report this category of pressures more than those who are in other income brackets.

8. Marital status and the pressure category "career development." Data indicate that married managers report this category of pressures more than do single managers.

9. Marital status and the pressure category "family and financial." Data indicate that married managers report this category of pressures more than single managers.

10. Marital status and the pressure category "self factors." Data indicate that single managers report this category of pressures more than married managers.

11. Age and the pressure category "intrinsic to the job." Data indicate that those who report this category of pressures are older than those who do not report this category of pressures.

12. Age and the pressure category "need to achieve." Data indicate that those who report this category of pressures are younger than those who do not report this category of pressures.

No significant relationships existed between any of the seven categories of pressures and the following variables: organizational level, direct reports, and the four MBTI dimensions (E/I, S/N, T/F, J/P).

Logistic Regression Analyses

Multivariate analyses consisting of seven separate logistic regression analyses were then conducted. In these

analyses, the dependent variables were the categories of pressures, and the selected demographic, occupational, and personality characteristics were the independent variables. The purpose of these analyses was to determine if the apparent effects (from the bivariate analyses) would hold when controlling for the presence of other factors. The results of this analysis also revealed which, if any, of the variables were predictive of any of the seven categories of pressures.

It should be noted that when variables are combined into a single model, a subject with missing data in any one of the variables is dropped from the subject pool. Thus, adjusting for the missing data when the variables were taken together in the logistic regression analyses, the resulting total of subjects numbered 418. In other words, a total of 86 subjects were dropped due to missing data.

A summary of the results of the seven logistic regression analyses is found in the Table 12. Detailed statistics on each of the multivariate procedures can be found in Appendix H.

Table 12

Results of Logistic Regression Analyses

Characteristics	Pressures						
	1 Job	2 Career Develop- ment	3 Balance	4 Family/ Financial	5 Self	6 Need to Achieve	7 Fears & Inade- quacies
Gender	.085	.134	.002	.07	.251	.176	.979
Age	.03	.073	.597	.518	.379	.035	.768
Organizational level	.987	.388	.934	.445	.826	.792	.170
Compensation	.05	.228	.093	.616	.094	.054	.651
Marital Status	.348	.076	.361	.078	.056	.688	.879
Children 0-5	.227	.683	.635	.023	.294	.814	.399
Direct reports	.203	.974	.704	.127	.906	.095	.639
E/I	.086	.689	.571	.266	.522	.729	.525
S/N	.158	.132	.190	.831	.282	.394	.035
T/F	.748	.473	.949	.831	.182	.749	.271
J/P	.709	.926	.960	.851	.350	.193	.585

Note: Bold type indicates $p \geq .05$

After accounting for the effects of other variables, findings of these analyses resulted in six significant relationships. These were as follows:

1. The pressure category "intrinsic to the job" and age. When controlling for other variables, data indicate that older managers are more likely to report this category of pressures than younger managers.

2. The pressure category "intrinsic to the job" and compensation. When controlling for other variables, data indicate that managers with an income of \$100,000 to

\$124,999 are more likely to report this category of pressures than managers of other income brackets.

3. The pressure category "balance" and gender. When controlling for other variables, data indicate that female managers are more likely to report this category of pressures than male managers.

4. The pressure category "family and financial" and children aged 0-5. When controlling for other variables, data indicate that managers with children aged 0-5 are more likely to report this category than those who do not have children aged 0-5.

5. The pressure category "need to achieve" and age. When controlling for other variables, data indicate that younger managers are more likely to report this category of pressures than older managers.

6. The pressure category "fears and inadequacies" and the S/N dimension of the MBTI. When controlling for other variables, data indicate that intuitive types are more likely to report this category of pressures than sensing types.

No significant relationships were found between the independent variables and the categories of pressures "career development" and "self factors."

Results Relating to the Hypotheses

H1: Significant predictors of the category of pressures "intrinsic to the job" are personality type (Feeling types

and Perceiving types) and organizational budget responsibility (high budget responsibly).

This hypothesis was not proven. The logistic regression analyses conducted with the category of pressures "intrinsic to the job" as the dependent variable yielded no significant relationship with either the J/P dimension or the T/F dimension of the MBTI.

The variable organizational budget responsibility, as stated earlier, contained too many omissions (n=141) and had to be dropped from the analysis. It was therefore not possible to test the hypothesis regarding this variable.

H2: Significant predictors of the category of pressures "work relationships" are organizational level (mid-level managers) and number of direct reports (high number of direct reports).

It was not possible to test this hypothesis because the category of work relationships ultimately did not emerge from the content analysis in the first part of the study. It was not, therefore, one of the final categories which served as the basis for the quantitative analyses.

H3: Significant predictors of the category of pressures "career development" are age (younger managers) and gender (female managers).

This hypothesis was not proven. None of the variables in the analysis proved to be significant predictors of the career development category.

H:4 A significant predictor of the category of pressures "work-family conflict" is number of young children (managers with greater number of young children).

It should be noted that this category underwent a refinement in definition as a result of the content analysis and was renamed "balance." Recognizing this adjustment, the hypothesis was not proven. No significant relationship was found between the pressure category and the number of children aged 0-5.

H:5 Gender is not a significant predictor of the category of pressures "work-family conflict."

This hypothesis was not proven. The logistic regression analysis conducted on the "balance" category resulted in a significant difference on the gender variable. The data suggest that female managers report this category more than male managers.

H:6 Significant predictors of the category of pressures "personal factors" are marital status (married managers) and compensation (lower income managers).

This hypothesis was not proven. Instead of one category, the content analysis resulted in two categories of personal factors. These were "family and financial" and "self factors." However, the logistic regression analysis on both of these categories yielded no significant predictive relationships.

H7: Significant predictors of the category of pressures "internal pressures" are personality type (introverts) and gender (male managers).

This hypothesis was not proven. This category was also subdivided into two categories as a result of the content analysis. These new categories were "need to achieve" and "fears and inadequacies." The logistic regression analysis performed on each of these separate categories did not result in a significant relationship between either pressure category and the variables, personality type (introverts) and gender (males).

CHAPTER V

Discussion

Content Analysis

The purpose of the content analysis in Part One of the study was the development of a conceptual model that will aid in clarifying the types of pressures experienced by managers and executives. Based on the stress literature, six categories were hypothesized and were described in Chapter III. The results of the content analysis basically supported three of the hypothesized categories ("factors intrinsic to the job," "career development factors," and "work-family imbalance"). One category, "work relationships," was subsumed under the larger category of "factors intrinsic to the job." The remaining two categories of the hypothesized model were large enough in number of items as well as conceptually intact enough to be subdivided into two categories. Thus, in the final analysis, the category "personal factors" became "family and financial" and "self factors." Likewise, the original category "internal pressures" became the two categories "need to achieve" and "fears and inadequacies." Although there was some refinement to the original model, it is important to note that no new categories were found.

Some interesting observations from the content analysis warrant comment. First, from the broadest perspective, the very fact that 97% of the population responded to the

question is certainly indicative of the fact that stress is a common phenomenon of managerial life. Only 13 respondents suggested that they experienced no pressures or that their life was stress free. It can also be said that the experience of stress as reported was not superficial or fleeting. The open-ended question specifically requested information on what types of pressures "deep down" were "at work" on the individual. The possibility thus exists that these people are experiencing additional forms of stress that are commonly dismissed as hassles of daily living. Also, it should be noted that 637 responses were recorded indicating that a certain number of the subjects, 115 in number, offered more than one response thus suggesting multiple deep-seated pressures.

A second observation regarding the content analysis is the fact that the category of "work relationships" did not remain a viable category as was hypothesized. In fact, the content analysis revealed that relative to other sources of stress, work relationships as a pressure is not that widely experienced. Although some managers did mention relationships with others as a source of stress, the number of responses in the category was anticipated to be significantly higher in order to stand alone as a unique category. Interestingly, the subjects of the study reported an average of eight direct and a median of 17 indirect reports, some reporting a total number of

employees in the thousands. Considering these numbers, coupled with the high numbers of interactions that managers have on a daily basis with co-workers, customers, and other colleagues (Glowinkowski and Cooper, 1986), it is surprising that more subjects did not report work relationships as a source of stress. It may be that the overwhelming nature of managerial work today and the repeated themes of doing too much with too little in a volatile and uncertain context has focused the manager's attention away from relationships and forced him/her to focus more on the pragmatic elements of the job and the tasks at hand.

Of equal interest is the fact that for those who did suggest work relationships as pressures, most of the responses were regarding stress related to working with one's boss or senior management. Much of the research on relationships has focused on the manager's relationship with peers or subordinates (e.g. Firth, 1985; Deluga, 1991), with special interest to the notion of responsibility for others. Little, if any, research attention has been given to the executive's relationship with senior management as a source of managerial stress.

A third observation resulting from the content analysis was the large representation of responses in the two categories "need to achieve" and "fears and inadequacies." It was originally hypothesized that internal or

psychological factors would be a single category of stressors. It was not anticipated that the category would be so large (representing 35% or 124 items) that it could be more specifically defined as two sets of internal pressures.

Psychological dynamics as sources of stress have been virtually neglected in the empirical research, and the findings from this study should provide some evidence for the inclusion of these factors in future research efforts. The notion that psychological or internal factors are important to the understanding of managerial stress is not new to the previously cited theoretical literature. In fact, the findings of the content analysis supports the theories of Meth and Pasick (1990) regarding success addiction and internal drive to achieve and outperform oneself as well as others. The number of items in this category was 22% of all items and was the largest of all categories.

It should be noted, however, that the findings of this study contribute a new notion to the success addiction theory, which has previously been stated in terms of success at work or career success. This study reveals the fact that success is important to the manager in all aspects of his/her life, not limited solely to one's career ambitions.

This study also supports Kaplan's (1991) theory of the expansive executive whose ambitious and successful exterior belies internal doubts and conflicts. In the present study, 13% of the responses were in the category of "fears and inadequacies."

A final observation regarding the content analysis is the inseparable connection between work and personal factors as sources of managerial stress.

Most studies have taken the approach of investigating the sources of stress from the perspective of a model of work versus nonwork stressors (e.g., Bunker, 1985; Rogers et al. 1994). This simplistic dichotomy has failed to recognize the unique overlap of these two domains and how often in combination they provide unique sources of stress. This study reveals that the identification of managerial stress sources cannot be neatly conceptualized into work or nonwork stressors.

The categories "factors intrinsic to the job" and "career development" certainly pertain exclusively to work-related stress. And the categories "family and financial" and "self factors" are equally linked to the domain of nonwork.

The remaining three categories, however, transcend these two domains of work and personal life. The categories of "balance" and the two sets of internal pressures "need to achieve" and "fears and inadequacies" are relevant both

in one's work life and in one's personal life. Just as in the "balance" category, stress is experienced by pulls from both home and work, so is the need to be successful experienced in both work and personal arenas. The managers' responses in the "need to achieve" category consistently referred to success not only at work but also in every aspect of their professional and personal lives, especially in their family roles. Likewise, the fears that were expressed in the "fears and inadequacies" category were inclusive of both domains. Fears surrounding doubts about being a good parent, spouse, or family member were as important as the fears associated with failing in one's career.

These interrelated categories give a much more holistic picture of managerial stress and help describe the complexity of the managerial stress sources. These findings highlight a deficiency in the previous research, which has attempted to inappropriately confine stress sources to either the manager's work life or personal life.

Summary

In summary, taken as a whole, the content analysis of the responses reveal a comprehensive model of interrelated sources of stress experienced by today's managers and executives. In brief, the model portrays a population of driven managers, with a self-imposed need to succeed and to be better than anyone else, in their professional as well

as in their personal lives. And each arena of the manager's life applies additional and separate pressures. In the work arena, stress is related to problems of career advancement and the immense responsibility of high performance as a manager in a volatile and demanding work environment. In one's personal world, the stress emanates from a responsibility to provide and care for the current and future needs of family and self. The desire for succeeding in both arenas of life often comes into conflict on a very obvious and pragmatic level as one attempts to sustain some type of balance in terms of time devoted to both work and personal life. But on a deeper, more psychological level, these managers are also plagued with self-doubt about one's competence and with fear of failing to meet the very high standards that one has set for him/herself in both of these important areas of life.

An integrated model can be conceptualized graphically as follows:

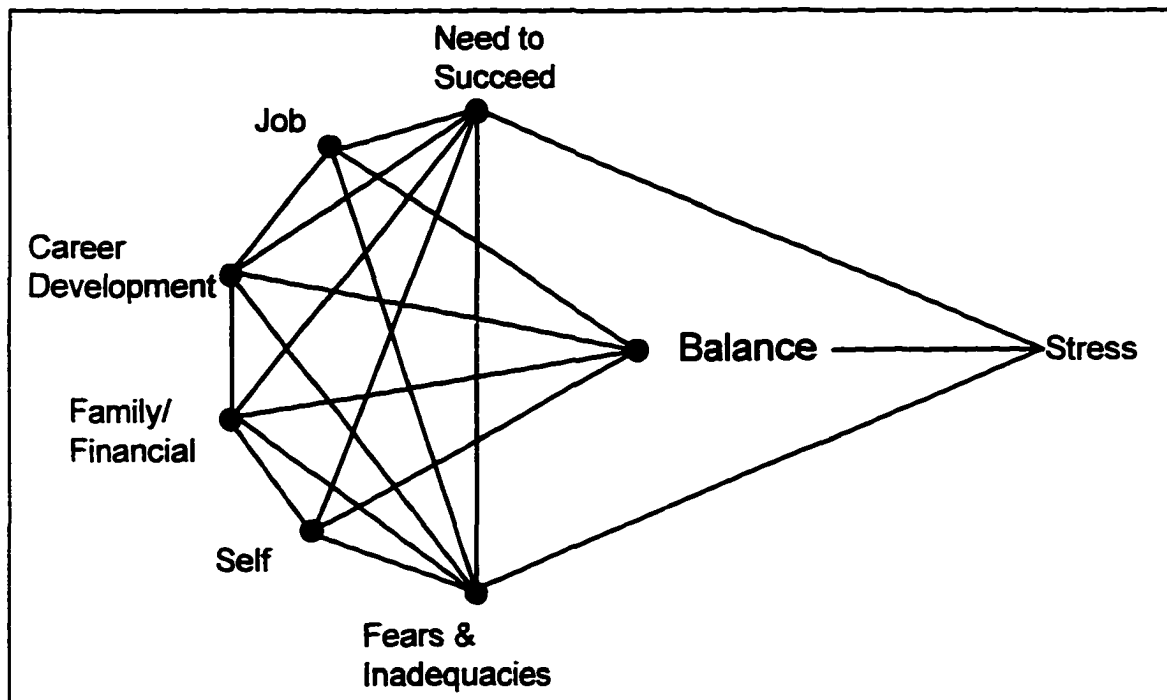


Figure 1. An integrated model of managerial stress

This model has been offered as a first attempt to conceptualize the complex of variables and their interactions in the consideration of managerial stress sources. An area of future research could be the validation of the model using statistical procedures such as factor analysis to test the stability of the categories and their relationship to each other. The categories of stressors identified by the content analysis could provide the initial step in the development of a managerial stress assessment instrument, the data from which could serve to provide empirical support for the model. Such an assessment instrument would also be a useful tool for executive coaches and human resource professionals in the identification of the quality and degree of stress experienced by individual managers.

Quantitative Analysis

The quantitative analyses were unable to support any of the hypotheses offered in Chapter III. A major problem with the testing of the hypotheses in the quantitative analysis was that the dependent variables, the pressure categories, were themselves hypotheses of the first part of the study, the content analysis. As a result of the content analysis, the categories of pressures were altered and even though they were similar to those originally posited, only two of the categories of the original set remained. The two

surviving categories were "intrinsic to the job" and "career development."

The other categories went through certain refinements. They were either collapsed into a larger category or subdivided into unique categories. The hypotheses relating to the quantitative analysis were based on the original set of categories. Since these categories no longer existed in the same form, the only two hypotheses that could accurately be tested were Hypothesis 1 and Hypothesis 3. Hypothesis 2 had to be dropped because the category "work relationships" no longer existed, and the remaining hypotheses were tested against the modified categories, leaving the validity of this approach suspect.

There was also a problem with regard to the independent variable, budget responsibility. This variable had to be dropped from the analysis because of the large number of missing responses, thus eliminating the testing of Hypothesis 1 on this variable. These multiple problems surrounding the originally constructed hypotheses are quite likely the major reason that none of the hypotheses were supported.

In addition to other methodological problems in the research design, which will be discussed in a later section, it also may be that an underlying assumption of the study was erroneous. The specific assumption, which now seems to be challenged, is that individual differences play

a major role in the stress process and that, based on certain demographic, occupational, or personality characteristics, one can predict the type of stress experienced by a manager. The purpose of the quantitative analysis was, in fact, to identify which of the individual variables were predictive of a certain type of stress. The results of the multivariate analysis of these variables taken together, however, show very weak evidence for this assumption.

Although they were not the relationships put forth in the original hypotheses, six significant findings did emerge from the multivariate analysis. These are discussed in the order of the strength of their significance.

Probably the most important finding of this study is the very strong association between gender and the category of pressures "balance." This finding, in fact, refutes the hypothesis that gender is not a significant predictor of this type of stress. At the significance level of $p=.002$, the clear finding is that women managers report balance issues as stressors in their lives significantly more than do male managers. This finding is also contradictory to certain research studies (Nelson & Hitt, 1992; Barnett, 1995; Judge et al, 1994) which suggest no difference between men and women managers on this dimension. One explanation for the apparent contradiction may be the

broadening of the category "work-family conflict" to "balance" in the content analysis.

The new category brought in the notion of lack of time for oneself as a source of stress in addition to the competing time demands of work and family responsibilities. This explanation would support the finding of Guelzow et al. (1991) that longer hours at work were directly associated with higher levels of stress for women but not for men. The notion that balance includes time for work, family, AND self may be more a source of stress for females who, like their male counterparts, may have come to grips with how to manage both work and family demands but who, presumably unlike their male counterparts, have no time left over for themselves.

The results of this study highlight that time for self is an important consideration when discussing life balance. Further research should investigate whether this new dimension of balance is more an issue for female managers than for male managers.

The next highest significant relationship was found between the variable children aged 0-5 and the pressure category "family and financial." This relationship makes intuitive sense since the category was primarily concerned with stress relating to the well-being and future security of one's family. It is not surprising that these concerns would be more a source of stress for a manager with a young

family than for a manager who is not just starting a family. This finding is also supported by the research of Guelzow et al. (1991), which suggests that the age and number of young children were significant factors related to stress in managers.

Age was found to be significantly related to two categories of pressures "intrinsic to the job" and "need to achieve." Unfortunately, the age differences appearing in the results were not particularly meaningful. With regard to age and job-related stressors, the data suggest that older managers report this category more than younger managers. However, the difference in age between those managers who reported the pressure and those who did not is quite small, approximately two years difference. Although the analysis may have revealed a significant difference between the two groups, the practical implications of the results render the finding rather meaningless. In other words, the fact that a manager at age 43 is more likely to report this category of pressures than a manager at age 41 provides little, if any, added knowledge to further theory regarding managerial stress. On a more pragmatic level, this information offers even less in terms of real implications for practices relating to alleviating or eliminating stress in a managerial population.

The same problem exists with the relationship between age and the pressure category "need to achieve." Strictly

from a statistical standpoint, again, a significant difference appeared, suggesting that older managers are more likely to report this category than younger managers. However, the difference between the average age of the group reporting the pressure category and the average age of the group who did not report it is quite small, a difference of 1.52 years. Once again this finding, although statistically significant, does not contribute to our knowledge of managerial stress.

If there were a greater difference in age for each of the pressure categories, it would be an interesting finding that suggests that the manager's age is related to his/her experience of a certain type of stress. The small difference in ages resulting from this study, however, offers no support for the consideration of age as an important variable in the study of managerial stress.

The next significant finding perhaps offers some new insight into individual differences and the experience of stress. A significant relationship ($p=.035$) was found to exist between the S/N dimension of the MBTI personality types and the category of pressures "fears and inadequacies." The data suggest that intuitive types are more likely to report this category than sensing types. There does not appear to be a clear theoretical rationale that can be offered up to explain this finding, but certain speculations are possible.

Intuitive types tend to be future oriented and are generally more focused on possibilities rather than facts, whereas their opposites, sensing types, are more present oriented and grounded in the status quo (Myers, 1993). It may be that intuitives, therefore, tend to focus more on their own personal potential and the possibility that they have reached their potential. It thus would be consistent that they would harbor some concerns for being able to continue to live up to the high standards they have for themselves and would worry that they will not be able to succeed in the future. Since no previous link has been made between intuitive types and the psychological pressures of self-doubts, this remains a pure speculation.

A final significant association was found in the logistic regression analysis between the variable compensation and the pressure category "intrinsic to the job." The data suggest that managers with an income between \$100,000 and \$124,000 are more likely to report this category of stressors than managers with other income levels. A possible explanation for this finding could have to do with the fact that the salary bracket of \$100,000 - \$124,999 was the next to the highest of the reported income levels. Managers with this income level could consider themselves just short of "making it" in terms of salary and prestige, and thus could be more focused and committed to the job and what it represents. The pressures associated

with the job would be therefore more stressful for these individuals rather than others who have either already "made it" or are far enough removed from the top salary levels that their on-the-job pressures do not have the same import. This speculation, however, is not supported in any of the research literature and the finding, similar to the findings around age, does not extend our knowledge or understanding of managerial stress in any meaningful way.

Finally, it is also of interest to note other relationships which, although not meeting the criterion level of significance, were in the range of .05 to .09. These relationships are as follows:

1. Male managers are more likely to report pressures intrinsic to the job than are female managers. (p=.085)
2. Extraverts are more likely to report pressures intrinsic to the job than are introverts. (p=.086)
3. Younger managers are more likely to report pressures related to career development than older managers. (p=.073)
4. Married managers are more likely to report pressures related to career development than are single managers. (p=.076)
5. Managers with incomes between \$75,000 and \$99,999 are more likely to report pressures related to balance than are managers in other income brackets. (p=.093)

6. Male managers are more likely to report pressures related to family and financial concerns than are female managers. ($p=.07$)

7. Married managers are more likely to report pressures related to family and financial concerns than are single managers. ($p=.078$)

8. Managers with incomes of \$100,000 to \$124,999 are more likely to report pressures related to self-concerns than are managers of other income brackets. ($p=.094$)

It is possible that, correcting for the methodological flaws in the study, these relationships could have been stronger. They certainly are worthy of further research and investigation.

Although the findings from the quantitative analysis do not seem as powerful as anticipated, there are other insights that may be gained from the study.

First, there were a total of 12 significant relationships which emerged from the initial bivariate analysis. More than half of these relationships, however, disappeared when the multivariate procedures were performed. In fact, seven of the significant findings lost significance with the latter test. This exercise points out the real danger of relying on simple bivariate analyses to explain phenomenon which often have a large number of influencing factors. Based on the initial analysis, it would appear, for instance, that a significant relationship

($p=.014$) exists between managers who have children aged 0-5 and the reporting of stress in the category "intrinsic to the job." However, this relationship became nonsignificant ($p=.227$) when it was analyzed in the context of other variables.

The use of the chi-square test to identify significant associations between variables in isolation can thus often lead to erroneous conclusions. It should be noted that such analyses are still prevalent in the managerial stress literature (e.g. Menon & Akhilesh, 1994; Rogers et al. 1994; Bednar et al. 1995), which formed the basis of the hypotheses for this study.

Another interesting observation on the two procedures is the finding in the logistic regression analyses that a significant relationship existed between the S/N dimension of the MBTI and the category "fears and inadequacies." This association did not appear in the bivariate analyses ($p=.315$) and only became significant ($p=.035$) after controlling for other variables.

As a result of this study, the very inclusion of the MBTI personality types as important independent variables may be brought into question. Interestingly, no relationships were found in the bivariate analyses. The one relationship that appeared as a result of the logistic regression analyses was also not easily explained by theory. The little research that has been conducted on MBTI

types and sources of managerial stress has consistently relied on data based on type distribution (O'Rourke, 1986; Reynierse, 1993) or correlational studies (Fitzgerald, 1994; Khalsa, 1991). Findings from this study, using both bivariate and multivariate procedures, suggest that few differences exist between one MBTI type and another. The findings thus indicate that very little information about the experience of stress can be gained through an examination of the individual's personality MBTI type.

Summary

In summary, there appears to be weak support for a linkage between reported stressors and certain demographic, occupational, and personality characteristics. Of the six significant relationships only two have real meaning—the relationships between (a) women managers and issues of balance, and between (b) managers with young children and family/financial pressures. The relationship between intuitive personality types and the category of pressures concerning fears and inadequacies had possible meaning to add to our understanding of managerial stress.

The real value of this study comes from the first part, which resulted in a framework or conceptual model of pressures experienced by managers and executives. The quantitative analyses of the study, in part due to methodological or research design problems, offered less to our understanding of managerial stress. These results,

however, did offer up a number of questions regarding certain possible relationships which could, with further research, help in the continued effort to understand the complex interaction of individual differences and the experience of stress.

Limitations

This study has several limitations. The most basic of all is that the cornerstone of the study was one question on a self-report questionnaire. It may be that the self-reporting nature of the questionnaire is not problematic, since it would be difficult to assess what is causing an individual stress by some external and objective means. Even if it were possible, it is unlikely that the internal or psychologically-based pressures would have become apparent by external assessment. More at issue is the fact that one open-ended guest was analyzed. Although the content analysis is rich with new insights, it is important to recognize that the model emanated from this one "snapshot" in time. The results of the content analysis and the conceptual model upon which it is based should be considered an initial step in the construction of a theory of managerial stress. The next step would be to validate the model or refine it through the use of empirical methods and further research.

Two flaws existed in the design of the study. The first had to do with the two-part nature of the study. As stated

before, the first part of the study offered up hypotheses related to the pressure categories. These categories became the foundation for the hypotheses in the second part of the study. The only way, then, that the hypotheses relating to the quantitative analysis in Part Two could have been tested accurately would have been if the categories resulting from the content analysis had stayed the same as those that were hypothesized. This situation did not occur, although the final categories were similar in concept.

In other words, the design problem of the study was that the dependent variables, upon which the hypotheses for the quantitative analyses were based, changed. Although this situation obviously caused difficulty in testing the hypotheses, it did not have an impact on the other findings from the logistic regression analyses.

The only way to have corrected this problem would have been to have had two independent studies. The first, the development of the model based on a content analysis, would need to have been completed. The known categories from that study then could have been used as the dependent variables in a second study to test hypotheses regarding relationships between the variables.

The other design problem of the study was related to the fact that the data used were from an existing data source. If the study had included the collection of data, two things could have been done differently. First, as

suggested above, in addition to the one open-ended question, more information could have been gained from the managerial population regarding their perceptions of stressors in their lives. Additionally and most important, a control group of nonmanagers could have completed the same survey and the study would have been greatly enhanced by having a comparison group. The results of the content analysis, although certainly reflecting the responses of a managerial group, may not be exclusively attributed to this population. In other words, it is still untested as to whether the conceptual model evolving from the content analysis is a model that can be also applied to other population groups such as entrepreneurs.

Finally, some methodological issues in the quantitative analysis were problematic. The most serious one was the fact that the quantitative analysis was made up of seven independent logistic regression analyses. The fact is that the pressure categories were not independent of each other. If subjects were able to put themselves in one category and no other, then the category could be considered to be independent. However, approximately 20% of the subjects offered multiple responses, thus reflecting a connection among the pressure categories. The assumption that the tests were run as independent tests was therefore fallacious. Furthermore, from a statistical point of view, the use of multiple experiments or tests can lead to false

positives and type one errors. This use of multiple experiments, in fact, may explain the significant findings related to the variables, compensation and MBTI types, which were difficult to interpret by theory.

To correct this problem of multiple independent tests, the ideal approach would be to create one model with all seven dependent variables in a single analysis. This course of action, however, was not possible because of the population size. A one-model approach offered up too many parameters, and the small cell sizes prohibited analysis. It should be noted that this one-model approach was attempted but failed. To conduct a single model analysis with the number of parameters in this study, thousands, not hundreds, of subjects would have been needed.

Additionally, to conduct the seven independent analyses, the variables had to be limited solely to those that were mentioned in the hypotheses. Originally there were several other variables, namely education level, number of indirect reports, and years of managerial experience, that were thought to be of interest but were dropped from the analysis in order to improve the statistical models.

A final limitation of the study was also connected to the selection of variables. As is typical in field research, reasonable and practical considerations required the exclusion of some potentially interesting variables

from the study. For example, as the workforce becomes increasingly diverse and more minorities are promoted to the managerial ranks, it may be that race is an important consideration in how different managers experience stress. However, to increase the probability that the most important influences were included in the model, past research guided the selection of variables. There remains, therefore, the possibility that some important variables not yet identified by previous research may have been omitted.

Implications

Despite the limitations mentioned in the preceding section, the findings of this study suggest some important implications for theory, research, and practice.

Theoretical implications.

The model resulting from the content analysis is an attempt to provide insight into the etiology of managerial stress through the development of a conceptual framework that represents the varied and complex sources of stress at work on managers and executives today. It should be noted that this framework is an initial attempt to develop a more cogent theory of managerial stress sources, and appropriate cautions are expressed in light of the limitations of the study stated above.

Any area of scientific inquiry needs theory. However, much of the stress research is atheoretical, that is, many

studies have proceeded without a theoretical position. Although there is a generally accepted theory that stress involves the interaction between a stimulus or stressor and a response to that stimulus, there is less agreement on what the specific stimuli or stressors are for a managerial population. This study offers the beginnings of a theory of managerial stress by attempting to identify those stressors. Once validated, this model could be used as a framework from which other inquiries into managerial stress could emanate.

The contributions of this conceptual framework to theory are as follows:

First, the content analysis revealed that managers do, in fact, experience deep-seated stress, and frequently the source of that stress stems from more than one area. The model offered seven different categories of stress, and most of these have been reported previously in the literature. What is unique about the model, however, was the presence of psychological or internal pressures which managers reported to be sources of stress. These categories were related to a strong need to succeed and achieve as well as to a conflicting fear of failure and lack of self-confidence. The inclusion of these psychological dynamics into the model of stress offers a holistic approach not seen before in the theoretical literature.

Second, the conceptual framework provides an integrated model that has not been previously acknowledged in the literature. A manager's experience of stress, from the results of this study, appears to be made up of an interrelated set of stressors that transcend all aspects of his or her life. It is far too simplistic, as has been the practice in previous research, to categorize managerial stress sources into either work stress or personal stress. This dichotomy fails to recognize the subtle interactions between the two areas of work and personal life. The results of this study suggest that the manager's two worlds collide around issues of needing to succeed, achieving balance, and feeling inadequate. The integrated approach offered up by this study sheds new light on those complex interactions.

Although there were only two significant and meaningful findings from the quantitative analysis, those two findings do contribute to existing theory. The most significant finding was that women managers do, in fact, report balance as a source of stress more often than do their male counterparts. The area of research on gender differences and balance has received conflicting findings, and although the results of this study do not settle the argument, the results do certainly support one side of the controversy.

The second significant finding of the quantitative analysis suggested that the number of young children, in

this study defined as ages 0-5, is a significant predictor of stress related to the family. This study adds support to previous research with similar results and also extends the theory by suggesting that family stress is intrinsically connected to concerns over financial and security issues of the family.

In summary, the conceptual model resulting from this study has supported the work of Yates (1979), Quick et al. (1990), and Sperry (1993a) as well as has expanded on the findings of Bunker (1985), Glowinkowski and Cooper (1986), and Crampton (1995) by presenting a comprehensive and interrelated set of stressors which include work, nonwork, and psychological factors. Furthermore, the results of the quantitative analyses have supported both the findings of Senatra (1988) regarding gender and issues of balance and the findings of Guelzow et al. (1991) regarding the variable of young children as a predictor of family-related stress.

Research implications.

As a result of this study, a number of possibilities for further research are suggested.

1. The most important research initiative would be the validation of the model that resulted from the content analysis. In fact, the purpose of the content analysis was to provide a springboard for empirical research by developing a model which could then later be tested. The

extended outline, which elaborates on the seven major categories of pressures, should serve as the substance of a detailed survey instrument that could be administered to various managerial groups. The results could then be statistically analyzed through the use of factor or cluster analysis to validate the categories and subcategories of the findings.

2. Researchers should replicate the quantitative part of the study in order to correct for the methodological problems which surfaced in this study. Specifically, the population should be large enough to support a single model logistic regression analysis. A larger population also would allow for the inclusion of other independent variables that may be of intuitive interest.

3. Ideally, in order to state with certainty that the results are unique to managers and executives, researchers should conduct both of the studies (suggested in the preceding paragraphs) validating the conceptual model and replicating the quantitative part of the study using both a managerial group and a nonmanagerial group as a comparison group. This is certainly an option for the validation study but is probably a less realistic option for the second recommendation, given the number of subjects that would be needed.

4. Using the information from a validation study, researchers could develop an instrument that could be used

as a tool for assessing managerial stress—an important research effort. Such a validated instrument would have many practical benefits in terms of use with individuals in executive coaching and counseling sessions or with groups in management development programs. The data from the instrument itself also could become a rich resource for continued research, for instance, as in group data comparisons or correlational studies with other measures such as stress outcomes.

5. Further research should be conducted on several of the significant findings of this study. Specifically, the clear finding on gender and balance could have been explained by the redefinition of the pressure category "balance." The notion of balance was defined as adjusting one's life to meet the demands of work and family while still having time for oneself. This added notion of time for oneself may be the reason that women report this type of stress rather than do men, since much recent research has confirmed that work-family conflicts were equal sources of stress for both men and women. Further research into this line of inquiry would be warranted. The second significant finding that suggests further research is the rather unexplainable relationship between the MBTI preference type, intuition, and the pressure category "fears and inadequacies." The fact that personality theory related to the MBTI cannot fully explain this finding

should not prevent further investigation into the relationship. Such research could conclude if the relationship was, in fact, a new element to the theory surrounding intuitive types or if it was nothing more than a meaningless artifact of the statistical analysis.

6. A final area of inquiry lies in the relationships that did not achieve statistical significance but, nevertheless, had probability values of less than .09. Based on these findings, four specific hypothesized relationships seem particularly salient and worthy of further investigation. These are:

1. More male managers than female managers reporting job related pressures.

2. More male managers than female managers reporting family/financial pressures.

3. More married managers than single managers reporting career development pressures.

4. More married managers than single managers reporting family/financial pressures.

Implications for practice.

The most important implication of any research endeavor is the impact the research findings have on practices that can be used for the betterment of our lives. There are a number of practical implications offered up from this study.

Any attempt to eliminate, mitigate, or otherwise improve the negative impact that stress can have on managers needs to start with the identification of what specifically is causing the stress. This necessary first step is key to the development of any helping strategies and can be said to be the most important practical contribution resulting from this study. The seven categories and their expanded definitions provide helping professionals a perspective to understand the deep-seated pressures at work on managers and offer a theoretical foundation upon which programs and strategies for change can be brought about. Three such strategies for practice are suggested.

Probably the most compelling finding of the study, as mentioned previously, is the strong influence of psychological dynamics on the experience of stress. It is suggested in the integrated model that, in fact, managerial stress emanates primarily from an intense ambition and need to achieve and succeed in all areas of the manager's life. Managing stress, then, means that one must look to the root cause of that drive, that compelling need to be the best and outperform others.

The traditional strategy for dealing with stress management has been individual behavioral modification. Often advocated in stress management workshops, such individual strategies include meditation, exercise, and

time management. Although these actions may play a role in mitigating stress, they are, at best, surface or cosmetic approaches and do not get to the basic issue having to do with the manager's intense and burning desire to succeed.

The primary strategy for dealing with this type of stress is through individual counseling. In this format, a manager can first confront his or her often faulty and unrealistic beliefs. These beliefs were repeated over and over again in the subjects' responses in this study. Some profound examples are as follows:

"I was brought up to succeed, to make the most of my intelligence, support my family and to really contribute something to society. That's a lot to carry."

I feel "pressures to 'do it all,' nice home, nice family, successful at work, be there for everyone."

"I want to do good, be recognized, be perfect all the time and above criticism."

Pressures at work on me are "my personal expectations to be all things to all people at any cost to me or my health."

Pressures at work on me are "guilt to be more than I am—a better wife, a better manager, a better engineer."

The challenge, then, of the executive coach or professional counselor is to help the manager acknowledge these beliefs and to help him or her to recognize them as unrealistic and often dysfunctional. Once an individual has this insight, more constructive and more realistic beliefs can be suggested to replace the dysfunctional ones.

This strategy may also be effectively employed with groups of managers in psychoeducational or stress management programs. An added dimension offered by a group intervention is the benefit of social support, a central component in developing and maintaining psychological health and stability.

The results of this study thus provide us with some insight into the most appropriate interventions to utilize when dealing with a managerial population. Organizational human resources specialists and other helping professionals as well have a theoretical rationale to support the utilization of individual counseling as an effective stress management intervention for managers and executives.

Certain organizational practices can be also recommended as a result of the managerial stress model presented in this study. Of special interest is the category of pressures "fears and inadequacies." Although

certainly individual counseling provides an appropriate intervention strategy for alleviating this type of stress, the organization also can implement certain programs and activities to help alleviate this source of stress in its managers. Most fears of inadequacy, of failure, of not "measuring up" stem from a lack of knowledge about oneself. This is a particularly common scenario for managers as they rise in the organization and become isolated from feedback regarding their performance and how they compare to their peers. This lack of knowledge leads to fears that one is "not good enough" and that one will soon be discovered as being incompetent.

Organizations can do much to alleviate this type of self-doubt. First, the organizational climate can be changed to be more conducive to openness and feedback. From the top down, managers themselves could be encouraged to be more proactive in creating opportunities for feedback among their staff through informal interactions to more formally scheduled performance review or career discussions. The more these practices begin to be exercised, the climate becomes more open and safer for subordinates, peers, and others to offer up feedback as a normal part of their working relationships.

Another extremely effective way for managers and executives to have a clearer understanding of how they are perceived in the workplace is through the use of 360-degree

assessment instruments. These instruments are becoming increasingly popular and are commonly utilized in management training programs as well as in individual coaching sessions. The instrument is made up of a set of questionnaires which require the respondent to rate the manager on a number of managerial behaviors and perspectives. The forms are completed by the manager, as well as anonymously by his or her peers, subordinates, and superior/s. The results of the various questionnaires form a confidential report in which self-ratings are compared to the ratings of others. This type of feedback is often the first opportunity many managers have had to gain an understanding of how they perform compared to others and of how others perceive them. The more this type of information is shared with managers perhaps the less they will be haunted by a lack of confidence and self-doubts.

Results of the quantitative analysis also have implications for organizations and their practices. The two significant relationships—that between women and balance and that between managers who have young children and family stress—should give rise to organizational practices that support flexible work schedules, work-at-home options such as "telecommuting," and sanctioned time during the workday to attend to family or personal issues. These types of organizational practices can do much to lessen the stress of family concerns and balance issues.

Likewise, organizations interested in relieving stress in their managers should consider the finding that financial concerns are a source of stress, particularly for managers with young families. Organizational benefits packages could include educational funds for children and retirement plans that provide managers a sound security for the future.

Finally, also from an organizational perspective, human resources professionals can use the knowledge gained from this study to improve their own management development programs, particularly programs geared to new or emerging managers. The results of this study can be included in such programs to give managers a clearer sense of what causes stress in their lives or what they can possibly anticipate if they are just entering a managerial position. Gaining a better understanding of the pitfalls of managerial life needs to be accompanied also with suggestions for strategies that can combat stress, such as those stated above.

Conclusion

The importance of this study lies in its contribution to our knowledge of the phenomenon of managerial stress and how managers may differ in their experience of stress.

Ultimately, however, the benefits of this study will be found in how helping professionals can utilize this increased understanding to create new programs or

strategies that will combat the epidemic of stress in managers and executives. Such initiatives can hopefully reduce the negative and harmful effects, be they physical, psychological, or behavioral, that excessive stress produces in the leaders of today's organizations.

As executive coaching and counseling becomes more popular as a strategy for helping managers and executives cope with the problems of their demanding roles, the more psychologists and counselors will be looking for guidance and direction from theory and the specialized knowledge that this study attempts to establish about this unique population group.

For the managers and executives themselves, it is hoped that the results of this study will be used to spearhead such efforts that will improve the quality of their lives by helping them become less burdened and more satisfied with themselves, their abilities, and their accomplishments.

For the organizations that these executives and managers represent, there are also benefits. The entrenched emotions, fears, and aspirations of managers and executives have dramatic impact on the very strategy, structure, and culture of the organization. Efforts to alleviate or reduce managerial stress can thus not only help the managers live healthier and happier lives but also can help them function better; enhance their performance and create a more

positive and productive work environment; and, in so doing,
improve the quality of the organizations in which they
work.

APPENDIX A

NATIONAL LEADERSHIP INSTITUTE*University of Maryland University College*

NATIONAL LEADERSHIP INSTITUTE
AND
THE CENTER FOR CREATIVE LEADERSHIP

OUR POLICY ON DATA AND PRIVACY FOR PROGRAM PARTICIPANTS

The Center for Creative Leadership is a non-profit educational institution founded in 1970 in Greensboro, North Carolina. The Center's goal is to improve the quality of leadership in organizations through research, education and dissemination of knowledge.

The University of Maryland University College conducts the Leadership Development Program and Foundations of Leadership under license from the Center for Creative Leadership and coordinates closely with the Center on all matters relating to privacy for program participants.

Since the organizations and people who participate in our training programs and other activities represent valuable sources for research data, the information we collect from them as part of these activities are stored in our data bases and may become part of a research project. We also, however, have a strong commitment to protect the rights, privacy, and dignity of every person who participates in these activities. For this reason we have a number of safeguards. Some of these are:

1. We closely adhere to the American Psychological Association's code of ethics regarding the use of humans in research; this code is particularly concerned with protecting the rights of the person.
2. All assessment data we collect on any person as part of a program are shared with and explained to that person.
3. All information we collect on a person is considered confidential. Individuals are never identified in public reports.
4. We will not voluntarily release to any organization or person information that identifies an individual. Although we have never been forced to release information without an individual's permission, we should note that in the extremely rare case of a court order we might be forced to do this. If, at the end of the program, you wish to have your data excluded from the Center's or University's database, please inform your instructor.
5. Periodically we publish data on groups of people. Specific organizations are identified only if we receive prior written approval from the organization involved. We also may provide to an organization summary profiles on groups of individuals in that organization if the numbers of individuals are large enough to be meaningful. We always protect the identify of individuals when releasing information on group performance.

This statement was prepared to help program participants understand our policy on privacy. If you have any questions, feel free to raise them with any staff member.

APPENDIX B

PARTICIPANT BACKGROUND FORM

The Center for Creative Leadership collects basic information in three major areas - demographic, education, and organizational information - from each participant. These data are treated confidentially and are used to evaluate our programs, to describe our participant population, and to aid in our research efforts. No information about individuals will be released without their written permission. Please complete the information below and items 1 through 13 on both sides.

NAME: Last First Middle

NAME YOU PREFER TO BE CALLED: _____

TITLE: _____

DIVISION: _____

ORGANIZATION: _____

WORK ADDRESS: _____

WORK PHONE: () _____

HOME PHONE: () _____

• Use No. 2 pencil only
• Make solid marks for all bubble responses
• Erase clearly
• Make no stray marks on the form
CORRECT MARK
INCORRECT MARKS

1 SEX
 Male
 Female

2 AGE
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0

3 RACE OR ETHNIC GROUP (check all that apply)
 American Indian or Alaskan Native
 Asian or Pacific Islander
 Black
 Hispanic
 White
 Other (please specify): _____

4 NUMBER OF YEARS OF SCHOOL (do not count with military or school)
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0

5 HIGHEST DEGREE EARNED (check one)
 High school
 Associate
 Bachelor's
 Master's
 Doctoral/Professional

*Using Scoring User Instructions on the back of the form to determine the order of collection between any and never not as determined by non-U.S. citizens.

6 TYPE OF ORGANIZATION (choose ONE) under the appropriate sector)
A. Business Sector
 Manufacturing
 Transportation, communications, utilities
 Wholesale/retail trade
 Finance, insurance, banking
 Health
 Other _____
B. Public Sector
 Elementary and Secondary Education
 Higher Education
 History
 Government agency
 Other _____
C. Private Nonprofit Sector
 Elementary and Secondary Education
 Higher Education
 Health
 Human Services
 Other _____

7 ORGANIZATIONAL LEVEL (choose one)
 TOP - Chief Executives or Operating Officers, Presidents
 EXECUTIVE - Vice Presidents, Directors, Board-level Professionals
 UPPER MIDDLE - Department Executives, Plant Managers, Senior Professional Staff
 MIDDLE - Area Managers, Professional Staff, Mid-level Administrators
 FIRST LEVEL - Forepersons, Crew Chiefs, Section Supervisors
 MIDDLE MANAGEMENT - Machine Operators, Clerical/Secretarial and Support Staff, Technicians
 NOT RELEVANT IN MY SITUATION

8 YOUR FUNCTION (Please check the ONE function most closely related to your work. If you job does several because you are a VP or CEO, please check TOP MANAGEMENT)
 Accounting
 Advertising
 Administration
 Advertising/Public Relations
 Credit/Finance
 Education
 Engineering
 Human Resources/Training
 Information Services/Data Processing
 Law
 Manufacturing
 Marketing
 Materials Management/Purchasing
 Logistics
 Operations
 Product Development
 Quality Control
 Research/Analyst
 Research and Development
 Sales
 Technical/Support
 Security
 Social Services
 Systems Analysts
 Top Management
 Other _____ (please specify): _____

PLEASE CONTINUE

APPENDIX C

<p>NATIONAL LEADERSHIP INSTITUTE</p> <p><i>University of Maryland University College</i></p>

Leadership Development Program

Supplemental Biographic Inventory

The information which you supply in the inventory will be used primarily by a member of our professional staff in the preparation of your confidential, one-on-one feedback session. It may also be used in conjunction with research, but in no case will your responses be available to outside persons or organizations.

NAME: _____

(First) (Middle) (Last)

BACKGROUND DATA

Birth Date _____

Current Status (check any applicable category):

- | | |
|--|--|
| <input type="checkbox"/> Single
<input type="checkbox"/> Married
<input type="checkbox"/> Committed Relationship | <input type="checkbox"/> Separated
<input type="checkbox"/> Not Currently Married
<input type="checkbox"/> Single Parent |
|--|--|

If you have children, what are their names and ages?

Birth Order: I am the _____ child in a family of _____ children
 (1st, 2nd, etc) (1, 2, etc.)

Up to the age of 18, in what type of locale(s) did you spend your youth?

- | | |
|--|--|
| <input type="checkbox"/> Rural/Village/Small Town (under 2,000)
<input type="checkbox"/> Small City (2,000-20,000)
<input type="checkbox"/> Medium City (20,000-200,000)
<input type="checkbox"/> Suburbs of a Large City
<input type="checkbox"/> Large City (200,000+) | _____ (name)

_____ |
|--|--|

EDUCATION AND TRAINING

What colleges or universities have you attended?

School: _____
 Dates Attended: _____
 Major Study and Degree: _____

School: _____
 Dates Attended: _____
 Major Study and Degree: _____

School: _____
 Dates Attended: _____
 Major Study and Degree: _____

In general, how would you characterize your academic performance in school? What would you say were your strengths? Your weaknesses? _____

In school what subjects did you like best and why? _____

In school what subjects did you like least and why? _____

In what extracurricular activities did you participate? _____

Any honors? _____

Please list any training programs, workshops, seminars, or correspondence courses that you have attended which have had particular meaning or significance for you.

Job Title: _____
 Major Responsibilities: _____
 Organization: _____
 Dates: From _____ to _____
 How did you like this job when you first started? _____
 How did you like it when you left? _____
 Reason for leaving: _____

Job Title: _____
 Major Responsibilities: _____
 Organization: _____
 Dates: From _____ to _____
 How did you like this job when you first started? _____
 How did you like it when you left? _____
 Reason for leaving: _____

Job Title: _____
 Major Responsibilities: _____
 Organization: _____
 Dates: From _____ to _____
 How did you like this job when you first started? _____
 How did you like it when you left? _____
 Reason for leaving: _____

Job Title: _____
 Major Responsibilities: _____
 Organization: _____
 Dates: From _____ to _____
 How did you like this job when you first started? _____
 How did you like it when you left? _____
 Reason for leaving: _____

Summary

Total years of adult working experience: _____
 Total years of management experience: _____
 Total number of employers (including your present one): _____

What do you anticipate the next step in your career to be, and what are your current thoughts and feelings about it? _____

What is your number one personal health concern? _____

Have you experienced any particularly dangerous or stressful events in your life, such as military combat, living in a war zone, violent assault, major accident?

What personality traits have you improved on since you were an adolescent? What used to be a problem? _____

Sometimes people misinterpret our personality. How do others see you that's different from how you really are? _____

Digging deep down inside yourself, where only you can see, what pressures would you say are at work on you?

What one issue, above all others, do you hope the Leadership Development Program will help you address?

Is there anything else you would like us to know? _____

Appendix D

Description of Population

Description of Population (N=504)

I. Demographic characteristics

A. Gender

	Frequency	Percent
Male	335	67.3
Female	163	32.7

B. Age

Mean	41.44
Standard deviation	6.73
Minimum	26
Maximum	63

C. Number of years of school

Mean	17.29
Standard deviation	2.35
Minimum	9
Maximum	25

D. Marital status

	Frequency	Percent
Single	110	21.9
Married	393	78.1

E. Number of children

	Frequency	Percent
0	32	8.0
1	78	19.4
2	187	46.5
3	71	17.7
4 or more	35	8.4

II. Occupational characteristics

A. Organizational Level

	Frequency	Percent
Executive	92	18.5
Upper middle	212	42.7
Middle	174	35.1
First level	16	3.2
Not relevant	2	.4

B. Number of direct reports

Mean	6.7
Standard deviation	6.7
Minimum	0
Maximum	50

C. Number of indirect reports

Mean	175.8
Standard deviation	1633.6
Minimum	0
Maximum	3000

D. Compensation

	Frequency	Percent
25,000-74,999	154	31.8
75,000-99,999	169	34.8
100,000-124,999	91	18.8
125,000-199,999	59	12.1
200,000 or more	12	2.4

E. Organizational Budget Responsibility

Quartiles

100%	40B
75%	20M
50%	3.5M
25%	1M

F. Years of managerial experience

Mean	11.2
Standard deviation	6.9
Minimum	0
Maximum	35

Appendix E

Distribution of MBTI Preferences (n=504)

	ISTJ	ISFJ	INFJ	INTJ
n	97	10	10	62
%	19.25	1.98	1.98	12.30
	ISTP	ISFP	INFP	INTP
n	18	5	10	39
%	3.57	0.99	1.98	7.74
	ESTP	ESFP	ENFP	ENTP
n	13	7	17	43
%	2.58	1.39	3.37	8.53
	ESTJ	ESFJ	ENFJ	ENTJ
n	82	12	11	68
%	16.27	2.38	2.18	13.49

	n	%		n	%
E	253	(50.2)	I	251	(49.8)
S	244	(48.4)	N	260	(51.6)
T	422	(83.7)	F	82	(16.3)
J	352	(69.8)	P	152	(30.2)

Appendix F

Bivariate Analyses, Categorical Variables

TABLE OF PRESS1 BY SEX

PRESS1	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	270	143	413
	54.22	28.71	82.93
	65.38	34.62	
	80.60	87.73	
Y	65	20	85
	13.05	4.02	17.07
	76.47	23.53	
	19.40	12.27	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS1 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	3.941	0.047
Likelihood Ratio Chi-Square	1	4.130	0.042
Continuity Adj. Chi-Square	1	3.454	0.063
Mantel-Haenszel Chi-Square	1	3.933	0.047
Fisher's Exact Test (Left)			0.030
(Right)			0.984
(2-Tail)			0.057
Phi Coefficient		-0.089	
Contingency Coefficient		0.089	
Cramer's V		-0.089	

Effective Sample Size = 498

Frequency Missing = 6

TABLE OF PRESS2 BY SEX

PRESS2	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	297	149	446
	59.64	29.92	89.56
	66.59	33.41	
	88.66	91.41	
Y	38	14	52
	7.63	2.81	10.44
	73.08	26.92	
	11.34	8.59	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS2 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	0.890	0.346
Likelihood Ratio Chi-Square	1	0.917	0.338
Continuity Adj. Chi-Square	1	0.619	0.431
Mantel-Haenszel Chi-Square	1	0.888	0.346
Fisher's Exact Test (Left)			0.217
(Right)			0.865
(2-Tail)			0.435
Phi Coefficient		-0.042	
Contingency Coefficient		0.042	
Cramer's V		-0.042	

Effective Sample Size = 498

Frequency Missing = 6

TABLE OF PRESS3 BY SEX

PRESS3	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	284	120	404
	57.03	24.10	81.12
	70.30	29.70	
	84.78	73.62	
Y	51	43	94
	10.24	8.63	18.88
	54.26	45.74	
	15.22	26.38	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS3 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	8.913	0.003
Likelihood Ratio Chi-Square	1	8.570	0.003
Continuity Adj. Chi-Square	1	8.199	0.004
Mantel-Haenszel Chi-Square	1	8.895	0.003
Fisher's Exact Test (Left)			0.999
(Right)			2.43E-03
(2-Tail)			3.43E-03
Phi Coefficient		0.134	
Contingency Coefficient		0.133	
Cramer's V		0.134	

Effective Sample Size = 498
Frequency Missing = 6

TABLE OF PRESS4 BY SEX

PRESS4	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	254	139	393
	51.00	27.91	78.92
	64.63	35.37	
	75.82	85.28	
Y	81	24	105
	16.27	4.82	21.08
	77.14	22.86	
	24.18	14.72	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS4 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	5.891	0.015
Likelihood Ratio Chi-Square	1	6.179	0.013
Continuity Adj. Chi-Square	1	5.337	0.021
Mantel-Haenszel Chi-Square	1	5.880	0.015
Fisher's Exact Test (Left)			9.31E-03
(Right)			0.995
(2-Tail)			0.019
Phi Coefficient		-0.109	
Contingency Coefficient		0.108	
Cramer's V		-0.109	

Effective Sample Size = 498

Frequency Missing = 6

TABLE OF PRESS5 BY SEX

PRESS5	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	300	139	439
	60.24	27.91	88.15
	68.34	31.66	
	89.55	85.28	
Y	35	24	59
	7.03	4.82	11.85
	59.32	40.68	
	10.45	14.72	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS5 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	1.920	0.166
Likelihood Ratio Chi-Square	1	1.862	0.172
Continuity Adj. Chi-Square	1	1.532	0.216
Mantel-Haenszel Chi-Square	1	1.916	0.166
Fisher's Exact Test (Left)			0.936
(Right)			0.109
(2-Tail)			0.184
Phi Coefficient		0.062	
Contingency Coefficient		0.062	
Cramer's V		0.062	

Effective Sample Size = 498
Frequency Missing = 6

TABLE OF PRESS6 BY SEX

PRESS6	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	249	110	359
	50.00	22.09	72.09
	69.36	30.64	
	74.33	67.48	
Y	86	53	139
	17.27	10.64	27.91
	61.87	38.13	
	25.67	32.52	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS6 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	2.552	0.110
Likelihood Ratio Chi-Square	1	2.514	0.113
Continuity Adj. Chi-Square	1	2.224	0.136
Mantel-Haenszel Chi-Square	1	2.547	0.110
Fisher's Exact Test (Left)			0.955
(Right)			0.069
(2-Tail)			0.112
Phi Coefficient		0.072	
Contingency Coefficient		0.071	
Cramer's V		0.072	

Effective Sample Size = 498

Frequency Missing = 6

TABLE OF PRESS7 BY SEX

PRESS7	SEX		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	283	134	417
	56.83	26.91	83.73
	67.87	32.13	
	84.48	82.21	
Y	52	29	81
	10.44	5.82	16.27
	64.20	35.80	
	15.52	17.79	
Total	335	163	498
	67.27	32.73	100.00

Frequency Missing = 6

STATISTICS FOR TABLE OF PRESS7 BY SEX

Statistic	DF	Value	Prob
Chi-Square	1	0.414	0.520
Likelihood Ratio Chi-Square	1	0.409	0.522
Continuity Adj. Chi-Square	1	0.265	0.607
Mantel-Haenszel Chi-Square	1	0.414	0.520
Fisher's Exact Test (Left)			0.781
(Right)			0.301
(2-Tail)			0.520
Phi Coefficient		0.029	
Contingency Coefficient		0.029	
Cramer's V		0.029	

Effective Sample Size = 498
Frequency Missing = 6

TABLE OF PRESS1 BY A0_5

PRESS1	A0_5		Total
	0	1	
Frequency			
Percent			
Row Pct			
Col Pct			
N	269	108	377
	58.99	23.68	82.68
	71.35	28.65	
	80.06	90.00	
Y	67	12	79
	14.69	2.63	17.32
	84.81	15.19	
	19.94	10.00	
Total	336	120	456
	73.68	26.32	100.00

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS1 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	6.100	0.014
Likelihood Ratio Chi-Square	1	6.693	0.010
Continuity Adj. Chi-Square	1	5.426	0.020
Mantel-Haenszel Chi-Square	1	6.087	0.014
Fisher's Exact Test (Left)			7.90E-03
(Right)			0.997
(2-Tail)			0.016
Phi Coefficient		-0.116	
Contingency Coefficient		0.115	
Cramer's V		-0.116	

Effective Sample Size = 456
Frequency Missing = 48

TABLE OF PRESS2 BY A0_5

PRESS2		A0_5		
Frequency				
Percent				
Row Pct				
Col Pct	0	1	Total	
N	303	105	408	
	66.45	23.03	89.47	
	74.26	25.74		
	90.18	87.50		
Y	33	15	48	
	7.24	3.29	10.53	
	68.75	31.25		
	9.82	12.50		
Total	336	120	456	
	73.68	26.32	100.00	

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS2 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	0.674	0.412
Likelihood Ratio Chi-Square	1	0.652	0.419
Continuity Adj. Chi-Square	1	0.419	0.517
Mantel-Haenszel Chi-Square	1	0.672	0.412
Fisher's Exact Test (Left)			0.840
(Right)			0.255
(2-Tail)			0.393
Phi Coefficient		0.038	
Contingency Coefficient		0.038	
Cramer's V		0.038	

Effective Sample Size = 456

Frequency Missing = 48

TABLE OF PRESS3 BY A0_5

PRESS3		A0_5		
Frequency				
Percent				
Row Pct				
Col Pct	0	1	Total	
N	281	96	377	
	61.62	21.05	82.68	
	74.54	25.46		
	83.63	80.00		
Y	55	24	79	
	12.06	5.26	17.32	
	69.62	30.38		
	16.37	20.00		
Total	336	120	456	
	73.68	26.32	100.00	

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS3 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	0.814	0.367
Likelihood Ratio Chi-Square	1	0.795	0.373
Continuity Adj. Chi-Square	1	0.580	0.446
Mantel-Haenszel Chi-Square	1	0.812	0.368
Fisher's Exact Test (Left)			0.851
(Right)			0.221
(2-Tail)			0.400
Phi Coefficient		0.042	
Contingency Coefficient		0.042	
Cramer's V		0.042	

Effective Sample Size = 456

Frequency Missing = 48

TABLE OF PRESS4 BY A0_5

PRESS4	A0_5		Total
	0	1	
Frequency			
Percent			
Row Pct			
Col Pct			
N	275	83	358
	60.31	18.20	78.51
	76.82	23.18	
	81.85	69.17	
Y	61	37	98
	13.38	8.11	21.49
	62.24	37.76	
	18.15	30.83	
Total	336	120	456
	73.68	26.32	100.00

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS4 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	8.424	0.004
Likelihood Ratio Chi-Square	1	7.988	0.005
Continuity Adj. Chi-Square	1	7.689	0.006
Mantel-Haenszel Chi-Square	1	8.405	0.004
Fisher's Exact Test (Left)			0.998
(Right)			3.34E-03
(2-Tail)			6.25E-03
Phi Coefficient		0.136	
Contingency Coefficient		0.135	
Cramer's V		0.136	

Effective Sample Size = 456
Frequency Missing = 48

TABLE OF PRESS5 BY A0_5

PRESS5	A0_5		Total
	0	1	
Frequency			
Percent			
Row Pct			
Col Pct			
N	294	110	404
	64.47	24.12	88.60
	72.77	27.23	
	87.50	91.67	
Y	42	10	52
	9.21	2.19	11.40
	80.77	19.23	
	12.50	8.33	
Total	336	120	456
	73.68	26.32	100.00

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS5 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	1.519	0.218
Likelihood Ratio Chi-Square	1	1.611	0.204
Continuity Adj. Chi-Square	1	1.135	0.287
Mantel-Haenszel Chi-Square	1	1.516	0.218
Fisher's Exact Test (Left)			0.143
(Right)			0.923
(2-Tail)			0.245
Phi Coefficient		-0.058	
Contingency Coefficient		0.058	
Cramer's V		-0.058	

Effective Sample Size = 456

Frequency Missing = 48

TABLE OF PRESS6 BY A0_5

PRESS6		A0_5		Total
Frequency	Percent	0	1	
Row Pct	Col Pct			
N		249	85	334
		54.61	18.64	73.25
		74.55	25.45	
		74.11	70.83	
Y		87	35	122
		19.08	7.68	26.75
		71.31	28.69	
		25.89	29.17	
Total		336	120	456
		73.68	26.32	100.00

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS6 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	0.484	0.487
Likelihood Ratio Chi-Square	1	0.478	0.489
Continuity Adj. Chi-Square	1	0.331	0.565
Mantel-Haenszel Chi-Square	1	0.483	0.487
Fisher's Exact Test (Left)			0.793
(Right)			0.281
(2-Tail)			0.548
Phi Coefficient		0.033	
Contingency Coefficient		0.033	
Cramer's V		0.033	

Effective Sample Size = 456

Frequency Missing = 48

TABLE OF PRESS7 BY A0_5

PRESS7	A0_5		Total
	0	1	
N	279	102	381
Frequency	61.18	22.37	83.55
Percent	73.23	26.77	
Row Pct	83.04	85.00	
Col Pct			
Y	57	18	75
Frequency	12.50	3.95	16.45
Percent	76.00	24.00	
Row Pct	16.96	15.00	
Col Pct			
Total	336	120	456
Frequency	73.68	26.32	100.00
Percent			
Row Pct			
Col Pct			

Frequency Missing = 48

STATISTICS FOR TABLE OF PRESS7 BY A0_5

Statistic	DF	Value	Prob
Chi-Square	1	0.248	0.618
Likelihood Ratio Chi-Square	1	0.252	0.616
Continuity Adj. Chi-Square	1	0.126	0.723
Mantel-Haenszel Chi-Square	1	0.248	0.619
Fisher's Exact Test (Left)			0.367
(Right)			0.736
(2-Tail)			0.669
Phi Coefficient		-0.023	
Contingency Coefficient		0.023	
Cramer's V		-0.023	

Effective Sample Size = 456

Frequency Missing = 48

TABLE OF PRESS1 BY ORGLEVEL

PRESS1		ORGLEVEL				
Frequency	Percent	1	2	3	4	Total
Row Pct	Col Pct					
N		76	176	145	14	411
		15.32	35.48	29.23	2.82	82.86
		18.49	42.82	35.28	3.41	
		82.61	83.02	83.33	77.78	
Y		16	36	29	4	85
		3.23	7.26	5.85	0.81	17.14
		18.82	42.35	34.12	4.71	
		17.39	16.98	16.67	22.22	
Total		92	212	174	18	496
		18.55	42.74	35.08	3.63	100.00

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS1 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	0.363	0.948
Likelihood Ratio Chi-Square	3	0.341	0.952
Mantel-Haenszel Chi-Square	1	0.014	0.907
Phi Coefficient		0.027	
Contingency Coefficient		0.027	
Cramer's V		0.027	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS2 BY ORGLEVEL

PRESS2	ORGLEVEL				Total
	1	2	3	4	
Frequency					
Percent					
Row Pct					
Col Pct					
N	84	190	153	17	444
	16.94	38.31	30.85	3.43	89.52
	18.92	42.79	34.46	3.83	
	91.30	89.62	87.93	94.44	
Y	8	22	21	1	52
	1.61	4.44	4.23	0.20	10.48
	15.38	42.31	40.38	1.92	
	8.70	10.38	12.07	5.56	
Total	92	212	174	18	496
	18.55	42.74	35.08	3.63	100.00

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS2 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	1.248	0.742
Likelihood Ratio Chi-Square	3	1.332	0.722
Mantel-Haenszel Chi-Square	1	0.237	0.626
Phi Coefficient		0.050	
Contingency Coefficient		0.050	
Cramer's V		0.050	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS3 BY ORGLEVEL

PRESS3	ORGLEVEL				Total
	1	2	3	4	
Frequency					
Percent					
Row Pct					
Col Pct					
N	72	170	144	16	402
	14.52	34.27	29.03	3.23	81.05
	17.91	42.29	35.82	3.98	
	78.26	80.19	82.76	88.89	
Y	20	42	30	2	94
	4.03	8.47	6.05	0.40	18.95
	21.28	44.68	31.91	2.13	
	21.74	19.81	17.24	11.11	
Total	92	212	174	18	496
	18.55	42.74	35.08	3.63	100.00

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS3 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	1.619	0.655
Likelihood Ratio Chi-Square	3	1.709	0.635
Mantel-Haenszel Chi-Square	1	1.466	0.226
Phi Coefficient		0.057	
Contingency Coefficient		0.057	
Cramer's V		0.057	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS4 BY ORGLEVEL

PRESS4		ORGLEVEL				
Frequency	Percent	1	2	3	4	Total
Row Pct	Col Pct					
N		75	170	133	13	391
		15.12	34.27	26.81	2.62	78.83
		19.18	43.48	34.02	3.32	
		81.52	80.19	76.44	72.22	
Y		17	42	41	5	105
		3.43	8.47	8.27	1.01	21.17
		16.19	40.00	39.05	4.76	
		18.48	19.81	23.56	27.78	
Total		92	212	174	18	496
		18.55	42.74	35.08	3.63	100.00

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS4 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	1.702	0.636
Likelihood Ratio Chi-Square	3	1.673	0.643
Mantel-Haenszel Chi-Square	1	1.570	0.210
Phi Coefficient		0.059	
Contingency Coefficient		0.058	
Cramer's V		0.059	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS5 BY ORGLEVEL

PRESS5		ORGLEVEL						
Frequency	Percent	Row Pct	Col Pct	1	2	3	4	Total
N	85	182	153	17	437			
	17.14	36.69	30.85	3.43	88.10			
	19.45	41.65	35.01	3.89				
	92.39	85.85	87.93	94.44				
Y	7	30	21	1	59			
	1.41	6.05	4.23	0.20	11.90			
	11.86	50.85	35.59	1.69				
	7.61	14.15	12.07	5.56				
Total	92	212	174	18	496			
	18.55	42.74	35.08	3.63	100.00			

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS5 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	3.338	0.342
Likelihood Ratio Chi-Square	3	3.643	0.303
Mantel-Haenszel Chi-Square	1	0.116	0.731
Phi Coefficient		0.082	
Contingency Coefficient		0.082	
Cramer's V		0.082	

Effective Sample Size = 496
Frequency Missing = 8

TABLE OF PRESS6 BY ORGLEVEL

PRESS6		ORGLEVEL						
Frequency	Percent	Row Pct	Col Pct	1	2	3	4	Total
N	68	149	126	15	358			
	13.71	30.04	25.40	3.02	72.18			
	18.99	41.62	35.20	4.19				
	73.91	70.28	72.41	83.33				
Y	24	63	48	3	138			
	4.84	12.70	9.68	0.60	27.82			
	17.39	45.65	34.78	2.17				
	26.09	29.72	27.59	16.67				
Total	92	212	174	18	496			
	18.55	42.74	35.08	3.63	100.00			

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS6 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	1.637	0.651
Likelihood Ratio Chi-Square	3	1.756	0.625
Mantel-Haenszel Chi-Square	1	0.128	0.720
Phi Coefficient		0.057	
Contingency Coefficient		0.057	
Cramer's V		0.057	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS7 BY ORGLEVEL

PRESS7	ORGLEVEL				
Frequency	1	2	3	4	Total
Percent					
Row Pct					
Col Pct					
N	72	181	150	13	416
	14.52	36.49	30.24	2.62	83.87
	17.31	43.51	36.06	3.13	
	78.26	85.38	86.21	72.22	
Y	20	31	24	5	80
	4.03	6.25	4.84	1.01	16.13
	25.00	38.75	30.00	6.25	
	21.74	14.62	13.79	27.78	
Total	92	212	174	18	496
	18.55	42.74	35.08	3.63	100.00

Frequency Missing = 8

STATISTICS FOR TABLE OF PRESS7 BY ORGLEVEL

Statistic	DF	Value	Prob
Chi-Square	3	5.004	0.172
Likelihood Ratio Chi-Square	3	4.615	0.202
Mantel-Haenszel Chi-Square	1	0.603	0.438
Phi Coefficient		0.100	
Contingency Coefficient		0.100	
Cramer's V		0.100	

Effective Sample Size = 496

Frequency Missing = 8

TABLE OF PRESS1 BY COMPENS

PRESS1	COMPENS				
Frequency					
Percent					
Row Pct					
Col Pct	1	2	3	4	Total
N	122	152	70	60	404
	25.15	31.34	14.43	12.37	83.30
	30.20	37.62	17.33	14.85	
	79.22	89.94	76.92	84.51	
Y	32	17	21	11	81
	6.60	3.51	4.33	2.27	16.70
	39.51	20.99	25.93	13.58	
	20.78	10.06	23.08	15.49	
Total	154	169	91	71	485
	31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS1 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	9.934	0.019
Likelihood Ratio Chi-Square	3	10.328	0.016
Mantel-Haenszel Chi-Square	1	0.067	0.796
Phi Coefficient		0.143	
Contingency Coefficient		0.142	
Cramer's V		0.143	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS2 BY COMPENS

PRESS2	COMPENS				Total
	1	2	3	4	
Frequency					
Percent					
Row Pct					
Col Pct					
N	139	149	79	67	434
	28.66	30.72	16.29	13.81	89.48
	32.03	34.33	18.20	15.44	
	90.26	88.17	86.81	94.37	
Y	15	20	12	4	51
	3.09	4.12	2.47	0.82	10.52
	29.41	39.22	23.53	7.84	
	9.74	11.83	13.19	5.63	
Total	154	169	91	71	485
	31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS2 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	2.899	0.407
Likelihood Ratio Chi-Square	3	3.172	0.366
Mantel-Haenszel Chi-Square	1	0.225	0.635
Phi Coefficient		0.077	
Contingency Coefficient		0.077	
Cramer's V		0.077	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS3 BY COMPENS

PRESS3		COMPENS				
Frequency	Percent	1	2	3	4	Total
Row Pct	Col Pct					
N		134	131	72	57	394
		27.63	27.01	14.85	11.75	81.24
		34.01	33.25	18.27	14.47	
		87.01	77.51	79.12	80.28	
Y		20	38	19	14	91
		4.12	7.84	3.92	2.89	18.76
		21.98	41.76	20.88	15.38	
		12.99	22.49	20.88	19.72	
Total		154	169	91	71	485
		31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS3 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	5.217	0.157
Likelihood Ratio Chi-Square	3	5.458	0.141
Mantel-Haenszel Chi-Square	1	1.881	0.170
Phi Coefficient		0.104	
Contingency Coefficient		0.103	
Cramer's V		0.104	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS4 BY COMPENS

PRESS4		COMPENS						
Frequency	Percent	Row Pct	Col Pct	1	2	3	4	Total
N	117	138	73	54	382			
	24.12	28.45	15.05	11.13	78.76			
	30.63	36.13	19.11	14.14				
	75.97	81.66	80.22	76.06				
Y	37	31	18	17	103			
	7.63	6.39	3.71	3.51	21.24			
	35.92	30.10	17.48	16.50				
	24.03	18.34	19.78	23.94				
Total	154	169	91	71	485			
	31.75	34.85	18.76	14.64	100.00			

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS4 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	1.989	0.575
Likelihood Ratio Chi-Square	3	1.991	0.574
Mantel-Haenszel Chi-Square	1	0.037	0.848
Phi Coefficient		0.064	
Contingency Coefficient		0.064	
Cramer's V		0.064	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS5 BY COMPENS

PRESS5		COMPENS				
Frequency	Percent	1	2	3	4	Total
Row Pct	Col Pct					
N		132	153	75	67	427
		27.22	31.55	15.46	13.81	88.04
		30.91	35.83	17.56	15.69	
		85.71	90.53	82.42	94.37	
Y		22	16	16	4	58
		4.54	3.30	3.30	0.82	11.96
		37.93	27.59	27.59	6.90	
		14.29	9.47	17.58	5.63	
Total		154	169	91	71	485
		31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS5 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	7.219	0.065
Likelihood Ratio Chi-Square	3	7.523	0.057
Mantel-Haenszel Chi-Square	1	1.019	0.313
Phi Coefficient		0.122	
Contingency Coefficient		0.121	
Cramer's V		0.122	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS6 BY COMPENS

PRESS6	COMPENS				
Frequency	1	2	3	4	Total
Percent					
Row Pct					
Col Pct					
N	121	108	69	50	348
	24.95	22.27	14.23	10.31	71.75
	34.77	31.03	19.83	14.37	
	78.57	63.91	75.82	70.42	
Y	33	61	22	21	137
	6.80	12.58	4.54	4.33	28.25
	24.09	44.53	16.06	15.33	
	21.43	36.09	24.18	29.58	
Total	154	169	91	71	485
	31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS6 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	9.474	0.024
Likelihood Ratio Chi-Square	3	9.455	0.024
Mantel-Haenszel Chi-Square	1	0.719	0.396
Phi Coefficient		0.140	
Contingency Coefficient		0.138	
Cramer's V		0.140	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS7 BY COMPENS

PRESS7	COMPENS				Total
Frequency	1	2	3	4	
Percent					
Row Pct					
Col Pct					
N	126	144	76	59	405
	25.98	29.69	15.67	12.16	83.51
	31.11	35.56	18.77	14.57	
	81.82	85.21	83.52	83.10	
Y	28	25	15	12	80
	5.77	5.15	3.09	2.47	16.49
	35.00	31.25	18.75	15.00	
	18.18	14.79	16.48	16.90	
Total	154	169	91	71	485
	31.75	34.85	18.76	14.64	100.00

Frequency Missing = 19

STATISTICS FOR TABLE OF PRESS7 BY COMPENS

Statistic	DF	Value	Prob
Chi-Square	3	0.682	0.877
Likelihood Ratio Chi-Square	3	0.684	0.877
Mantel-Haenszel Chi-Square	1	0.058	0.810
Phi Coefficient		0.038	
Contingency Coefficient		0.037	
Cramer's V		0.038	

Effective Sample Size = 485

Frequency Missing = 19

TABLE OF PRESS1 BY MARSTAT

PRESS1	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	327	91	418
	65.01	18.09	83.10
	78.23	21.77	
	83.21	82.73	
Y	66	19	85
	13.12	3.78	16.90
	77.65	22.35	
	16.79	17.27	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS1 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	0.014	0.906
Likelihood Ratio Chi-Square	1	0.014	0.906
Continuity Adj. Chi-Square	1	0.000	1.000
Mantel-Haenszel Chi-Square	1	0.014	0.906
Fisher's Exact Test (Left)			0.610
(Right)			0.503
(2-Tail)			0.886
Phi Coefficient		0.005	
Contingency Coefficient		0.005	
Cramer's V		0.005	

Effective Sample Size = 503
Frequency Missing = 1

TABLE OF PRESS2 BY MARSTAT

PRESS2	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	346	104	450
	68.79	20.68	89.46
	76.89	23.11	
	88.04	94.55	
Y	47	6	53
	9.34	1.19	10.54
	88.68	11.32	
	11.96	5.45	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS2 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	3.858	0.050
Likelihood Ratio Chi-Square	1	4.404	0.036
Continuity Adj. Chi-Square	1	3.198	0.074
Mantel-Haenszel Chi-Square	1	3.850	0.050
Fisher's Exact Test (Left)			0.031
(Right)			0.988
(2-Tail)			0.053
Phi Coefficient		-0.088	
Contingency Coefficient		0.087	
Cramer's V		-0.088	

Effective Sample Size = 503

Frequency Missing = 1

TABLE OF PRESS3 BY MARSTAT

PRESS3	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	317	93	410
	63.02	18.49	81.51
	77.32	22.68	
	80.66	84.55	
Y	76	17	93
	15.11	3.38	18.49
	81.72	18.28	
	19.34	15.45	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS3 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	0.860	0.354
Likelihood Ratio Chi-Square	1	0.889	0.346
Continuity Adj. Chi-Square	1	0.622	0.430
Mantel-Haenszel Chi-Square	1	0.859	0.354
Fisher's Exact Test (Left)			0.217
(Right)			0.858
(2-Tail)			0.406
Phi Coefficient		-0.041	
Contingency Coefficient		0.041	
Cramer's V		-0.041	

Effective Sample Size = 503

Frequency Missing = 1

TABLE OF PRESS4 BY MARSTAT

PRESS4	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	300	97	397
	59.64	19.28	78.93
	75.57	24.43	
	76.34	88.18	
Y	93	13	106
	18.49	2.58	21.07
	87.74	12.26	
	23.66	11.82	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS4 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	7.251	0.007
Likelihood Ratio Chi-Square	1	8.015	0.005
Continuity Adj. Chi-Square	1	6.556	0.010
Mantel-Haenszel Chi-Square	1	7.237	0.007
Fisher's Exact Test (Left)			3.84E-03
(Right)			0.998
(2-Tail)			7.79E-03
Phi Coefficient		-0.120	
Contingency Coefficient		0.119	
Cramer's V		-0.120	

Effective Sample Size = 503

Frequency Missing = 1

TABLE OF PRESS5 BY MARSTAT

PRESS5	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	354	89	443
	70.38	17.69	88.07
	79.91	20.09	
	90.08	80.91	
Y	39	21	60
	7.75	4.17	11.93
	65.00	35.00	
	9.92	19.09	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS5 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	6.875	0.009
Likelihood Ratio Chi-Square	1	6.237	0.013
Continuity Adj. Chi-Square	1	6.030	0.014
Mantel-Haenszel Chi-Square	1	6.861	0.009
Fisher's Exact Test (Left)			0.996
(Right)			9.03E-03
(2-Tail)			0.012
Phi Coefficient		0.117	
Contingency Coefficient		0.116	
Cramer's V		0.117	

Effective Sample Size = 503

Frequency Missing = 1

TABLE OF PRESS6 BY MARSTAT

PRESS6	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	288	74	362
	57.26	14.71	71.97
	79.56	20.44	
	73.28	67.27	
Y	105	36	141
	20.87	7.16	28.03
	74.47	25.53	
	26.72	32.73	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS6 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	1.539	0.215
Likelihood Ratio Chi-Square	1	1.505	0.220
Continuity Adj. Chi-Square	1	1.255	0.263
Mantel-Haenszel Chi-Square	1	1.536	0.215
Fisher's Exact Test (Left)			0.912
(Right)			0.132
(2-Tail)			0.231
Phi Coefficient		0.055	
Contingency Coefficient		0.055	
Cramer's V		0.055	

Effective Sample Size = 503
Frequency Missing = 1

TABLE OF PRESS7 BY MARSTAT

PRESS7	MARSTAT		Total
	1	2	
Frequency			
Percent			
Row Pct			
Col Pct			
N	329	91	420
	65.41	18.09	83.50
	78.33	21.67	
	83.72	82.73	
Y	64	19	83
	12.72	3.78	16.50
	77.11	22.89	
	16.28	17.27	
Total	393	110	503
	78.13	21.87	100.00

Frequency Missing = 1

STATISTICS FOR TABLE OF PRESS7 BY MARSTAT

Statistic	DF	Value	Prob
Chi-Square	1	0.061	0.805
Likelihood Ratio Chi-Square	1	0.060	0.806
Continuity Adj. Chi-Square	1	0.010	0.919
Mantel-Haenszel Chi-Square	1	0.061	0.805
Fisher's Exact Test (Left)			0.658
(Right)			0.452
(2-Tail)			0.773
Phi Coefficient		0.011	
Contingency Coefficient		0.011	
Cramer's V		0.011	

Effective Sample Size = 503

Frequency Missing = 1

TABLE OF PRESS1 BY EI

PRESS1	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	204	215	419
	40.48	42.66	83.13
	48.69	51.31	
	80.63	85.66	
Y	49	36	85
	9.72	7.14	16.87
	57.65	42.35	
	19.37	14.34	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS1 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	2.269	0.132
Likelihood Ratio Chi-Square	1	2.277	0.131
Continuity Adj. Chi-Square	1	1.925	0.165
Mantel-Haenszel Chi-Square	1	2.265	0.132
Fisher's Exact Test (Left)			0.083
(Right)			0.948
(2-Tail)			0.153
Phi Coefficient		-0.067	
Contingency Coefficient		0.067	
Cramer's V		-0.067	

Sample Size = 504

TABLE OF PRESS2 BY EI

PRESS2	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	226	225	451
	44.84	44.64	89.48
	50.11	49.89	
	89.33	89.64	
Y	27	26	53
	5.36	5.16	10.52
	50.94	49.06	
	10.67	10.36	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS2 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.013	0.909
Likelihood Ratio Chi-Square	1	0.013	0.909
Continuity Adj. Chi-Square	1	0.000	1.000
Mantel-Haenszel Chi-Square	1	0.013	0.909
Fisher's Exact Test (Left)			0.512
(Right)			0.602
(2-Tail)			1.000
Phi Coefficient		-0.005	
Contingency Coefficient		0.005	
Cramer's V		-0.005	
Sample Size = 504			

TABLE OF PRESS3 BY EI

PRESS3	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	205	205	410
	40.67	40.67	81.35
	50.00	50.00	
	81.03	81.67	
Y	48	46	94
	9.52	9.13	18.65
	51.06	48.94	
	18.97	18.33	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS3 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.035	0.852
Likelihood Ratio Chi-Square	1	0.035	0.852
Continuity Adj. Chi-Square	1	0.005	0.943
Mantel-Haenszel Chi-Square	1	0.035	0.853
Fisher's Exact Test (Left)			0.471
(Right)			0.618
(2-Tail)			0.909
Phi Coefficient		-0.008	
Contingency Coefficient		0.008	
Cramer's V		-0.008	

Sample Size = 504

TABLE OF PRESS4 BY EI

PRESS4	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	199	199	398
	39.48	39.48	78.97
	50.00	50.00	
	78.66	79.28	
Y	54	52	106
	10.71	10.32	21.03
	50.94	49.06	
	21.34	20.72	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS4 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.030	0.863
Likelihood Ratio Chi-Square	1	0.030	0.863
Continuity Adj. Chi-Square	1	0.004	0.950
Mantel-Haenszel Chi-Square	1	0.030	0.863
Fisher's Exact Test (Left)			0.475
(Right)			0.611
(2-Tail)			0.913
Phi Coefficient		-0.008	
Contingency Coefficient		0.008	
Cramer's V		-0.008	

Sample Size = 504

TABLE OF PRESS5 BY EI

PRESS5	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	220	224	444
	43.65	44.44	88.10
	49.55	50.45	
	86.96	89.24	
Y	33	27	60
	6.55	5.36	11.90
	55.00	45.00	
	13.04	10.76	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS5 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.628	0.428
Likelihood Ratio Chi-Square	1	0.629	0.428
Continuity Adj. Chi-Square	1	0.429	0.512
Mantel-Haenszel Chi-Square	1	0.627	0.429
Fisher's Exact Test (Left)			0.256
(Right)			0.824
(2-Tail)			0.492
Phi Coefficient		-0.035	
Contingency Coefficient		0.035	
Cramer's V		-0.035	

Sample Size = 504

TABLE OF PRESS6 BY EI

PRESS6	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	185	178	363
	36.71	35.32	72.02
	50.96	49.04	
	73.12	70.92	
Y	68	73	141
	13.49	14.48	27.98
	48.23	51.77	
	26.88	29.08	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS6 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.304	0.581
Likelihood Ratio Chi-Square	1	0.304	0.581
Continuity Adj. Chi-Square	1	0.205	0.651
Mantel-Haenszel Chi-Square	1	0.304	0.582
Fisher's Exact Test (Left)			0.742
(Right)			0.325
(2-Tail)			0.620
Phi Coefficient		0.025	
Contingency Coefficient		0.025	
Cramer's V		0.025	

Sample Size = 504

TABLE OF PRESS7 BY EI

PRESS7	EI		Total
	E	I	
Frequency			
Percent			
Row Pct			
Col Pct			
N	214	207	421
	42.46	41.07	83.53
	50.83	49.17	
	84.58	82.47	
Y	39	44	83
	7.74	8.73	16.47
	46.99	53.01	
	15.42	17.53	
Total	253	251	504
	50.20	49.80	100.00

STATISTICS FOR TABLE OF PRESS7 BY EI

Statistic	DF	Value	Prob
Chi-Square	1	0.410	0.522
Likelihood Ratio Chi-Square	1	0.410	0.522
Continuity Adj. Chi-Square	1	0.270	0.603
Mantel-Haenszel Chi-Square	1	0.409	0.523
Fisher's Exact Test (Left)			0.776
(Right)			0.302
(2-Tail)			0.550
Phi Coefficient		0.029	
Contingency Coefficient		0.028	
Cramer's V		0.029	

Sample Size = 504

TABLE OF PRESS1 BY SN

PRESS1		SN		
Frequency				
Percent				
Row Pct				
Col Pct	N	S	Total	
N	224	195	419	
	44.44	38.69	83.13	
	53.46	46.54		
	86.15	79.92		
Y	36	49	85	
	7.14	9.72	16.87	
	42.35	57.65		
	13.85	20.08		
Total	260	244	504	
	51.59	48.41	100.00	

STATISTICS FOR TABLE OF PRESS1 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	3.491	0.062
Likelihood Ratio Chi-Square	1	3.497	0.061
Continuity Adj. Chi-Square	1	3.060	0.080
Mantel-Haenszel Chi-Square	1	3.484	0.062
Fisher's Exact Test (Left)			0.977
(Right)			0.040
(2-Tail)			0.074
Phi Coefficient		0.083	
Contingency Coefficient		0.083	
Cramer's V		0.083	

Sample Size = 504

TABLE OF PRESS2 BY SN

PRESS2		SN		Total
Frequency	N	S		
Percent				
Row Pct				
Col Pct				
N	237	214	451	
	47.02	42.46	89.48	
	52.55	47.45		
	91.15	87.70		
Y	23	30	53	
	4.56	5.95	10.52	
	43.40	56.60		
	8.85	12.30		
Total	260	244	504	
	51.59	48.41	100.00	

STATISTICS FOR TABLE OF PRESS2 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	1.591	0.207
Likelihood Ratio Chi-Square	1	1.593	0.207
Continuity Adj. Chi-Square	1	1.246	0.264
Mantel-Haenszel Chi-Square	1	1.588	0.208
Fisher's Exact Test (Left)			0.920
(Right)			0.132
(2-Tail)			0.245
Phi Coefficient		0.056	
Contingency Coefficient		0.056	
Cramer's V		0.056	

Sample Size = 504

TABLE OF PRESS3 BY SN

PRESS3		SN		
Frequency				
Percent				
Row Pct				
Col Pct	N	S		Total
N	210	200		410
	41.67	39.68		81.35
	51.22	48.78		
	80.77	81.97		
Y	50	44		94
	9.92	8.73		18.65
	53.19	46.81		
	19.23	18.03		
Total	260	244		504
	51.59	48.41		100.00

STATISTICS FOR TABLE OF PRESS3 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	0.119	0.730
Likelihood Ratio Chi-Square	1	0.119	0.730
Continuity Adj. Chi-Square	1	0.053	0.818
Mantel-Haenszel Chi-Square	1	0.119	0.730
Fisher's Exact Test (Left)			0.409
(Right)			0.677
(2-Tail)			0.819
Phi Coefficient		-0.015	
Contingency Coefficient		0.015	
Cramer's V		-0.015	

Sample Size = 504

TABLE OF PRESS4 BY SN

Frequency Percent Row Pct Col Pct	N	S	Total
N	207	191	398
	41.07	37.90	78.97
	52.01	47.99	
	79.62	78.28	
Y	53	53	106
	10.52	10.52	21.03
	50.00	50.00	
	20.38	21.72	
Total	260	244	504
	51.59	48.41	100.00

STATISTICS FOR TABLE OF PRESS4 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	0.135	0.713
Likelihood Ratio Chi-Square	1	0.135	0.713
Continuity Adj. Chi-Square	1	0.067	0.796
Mantel-Haenszel Chi-Square	1	0.135	0.713
Fisher's Exact Test (Left)			0.684
(Right)			0.398
(2-Tail)			0.744
Phi Coefficient		0.016	
Contingency Coefficient		0.016	
Cramer's V		0.016	

Sample Size = 504

TABLE OF PRESS5 BY SN

PRESS5		SN		
Frequency				
Percent				
Row Pct				
Col Pct	N	S		Total
N	227	217		444
	45.04	43.06		88.10
	51.13	48.87		
	87.31	88.93		
Y	33	27		60
	6.55	5.36		11.90
	55.00	45.00		
	12.69	11.07		
Total	260	244		504
	51.59	48.41		100.00

STATISTICS FOR TABLE OF PRESS5 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	0.318	0.573
Likelihood Ratio Chi-Square	1	0.318	0.573
Continuity Adj. Chi-Square	1	0.181	0.670
Mantel-Haenszel Chi-Square	1	0.317	0.573
Fisher's Exact Test (Left)			0.336
(Right)			0.758
(2-Tail)			0.585
Phi Coefficient		-0.025	
Contingency Coefficient		0.025	
Cramer's V		-0.025	

Sample Size = 504

TABLE OF PRESS6 BY SN

PRESS6		SN		
Frequency				
Percent				
Row Pct				
Col Pct	N	S		Total
N	182	181		363
	36.11	35.91		72.02
	50.14	49.86		
	70.00	74.18		
Y	78	63		141
	15.48	12.50		27.98
	55.32	44.68		
	30.00	25.82		
Total	260	244		504
	51.59	48.41		100.00

STATISTICS FOR TABLE OF PRESS6 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	1.092	0.296
Likelihood Ratio Chi-Square	1	1.094	0.296
Continuity Adj. Chi-Square	1	0.894	0.344
Mantel-Haenszel Chi-Square	1	1.089	0.297
Fisher's Exact Test (Left)			0.172
(Right)			0.874
(2-Tail)			0.321
Phi Coefficient		-0.047	
Contingency Coefficient		0.046	
Cramer's V		-0.047	
Sample Size = 504			

TABLE OF PRESS7 BY SN

PRESS7	SN		Total
	N	S	
Frequency			
Percent			
Row Pct			
Col Pct			
N	213	208	421
	42.26	41.27	83.53
	50.59	49.41	
	81.92	85.25	
Y	47	36	83
	9.33	7.14	16.47
	56.63	43.37	
	18.08	14.75	
Total	260	244	504
	51.59	48.41	100.00

STATISTICS FOR TABLE OF PRESS7 BY SN

Statistic	DF	Value	Prob
Chi-Square	1	1.010	0.315
Likelihood Ratio Chi-Square	1	1.013	0.314
Continuity Adj. Chi-Square	1	0.783	0.376
Mantel-Haenszel Chi-Square	1	1.008	0.315
Fisher's Exact Test (Left)			0.188
(Right)			0.870
(2-Tail)			0.338
Phi Coefficient		-0.045	
Contingency Coefficient		0.045	
Cramer's V		-0.045	

Sample Size = 504

TABLE OF PRESS1 BY TF

PRESS1	TF		Total
	F	T	
N	70	349	419
	13.89	69.25	83.13
	16.71	83.29	
	85.37	82.70	
Y	12	73	85
	2.38	14.48	16.87
	14.12	85.88	
	14.63	17.30	
Total	82	422	504
	16.27	83.73	100.00

STATISTICS FOR TABLE OF PRESS1 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.348	0.555
Likelihood Ratio Chi-Square	1	0.358	0.549
Continuity Adj. Chi-Square	1	0.184	0.668
Mantel-Haenszel Chi-Square	1	0.347	0.556
Fisher's Exact Test (Left)			0.770
(Right)			0.342
(2-Tail)			0.631
Phi Coefficient		0.026	
Contingency Coefficient		0.026	
Cramer's V		0.026	

Sample Size = 504

TABLE OF PRESS2 BY TF

PRESS2	TF		Total
	F	T	
Frequency			
Percent			
Row Pct			
Col Pct			
N	74	377	451
	14.68	74.80	89.48
	16.41	83.59	
	90.24	89.34	
Y	8	45	53
	1.59	8.93	10.52
	15.09	84.91	
	9.76	10.66	
Total	82	422	504
	16.27	83.73	100.00

STATISTICS FOR TABLE OF PRESS2 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.060	0.806
Likelihood Ratio Chi-Square	1	0.061	0.805
Continuity Adj. Chi-Square	1	0.002	0.961
Mantel-Haenszel Chi-Square	1	0.060	0.807
Fisher's Exact Test (Left)			0.660
(Right)			0.495
(2-Tail)			1.000
Phi Coefficient		0.011	
Contingency Coefficient		0.011	
Cramer's V		0.011	

Sample Size = 504

TABLE OF PRESS3 BY TF

PRESS3	TF		Total
	F	T	
Frequency			
Percent			
Row Pct			
Col Pct			
N	64	346	410
	12.70	68.65	81.35
	15.61	84.39	
	78.05	81.99	
Y	18	76	94
	3.57	15.08	18.65
	19.15	80.85	
	21.95	18.01	
Total	82	422	504
	16.27	83.73	100.00

STATISTICS FOR TABLE OF PRESS3 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.703	0.402
Likelihood Ratio Chi-Square	1	0.680	0.410
Continuity Adj. Chi-Square	1	0.467	0.494
Mantel-Haenszel Chi-Square	1	0.702	0.402
Fisher's Exact Test (Left)			0.244
(Right)			0.840
(2-Tail)			0.438
Phi Coefficient		-0.037	
Contingency Coefficient		0.037	
Cramer's V		-0.037	

Sample Size = 504

TABLE OF PRESS4 BY TF

PRESS4	TF		Total
	F	T	
N	Frequency		
	Percent		
	Row Pct		
	Col Pct		
	69	329	398
	13.69	65.28	78.97
	17.34	82.66	
	84.15	77.96	
Y	Frequency		
	Percent		
	Row Pct		
	Col Pct		
	13	93	106
	2.58	18.45	21.03
	12.26	87.74	
	15.85	22.04	
Total	82	422	504
	16.27	83.73	100.00

STATISTICS FOR TABLE OF PRESS4 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	1.581	0.209
Likelihood Ratio Chi-Square	1	1.670	0.196
Continuity Adj. Chi-Square	1	1.231	0.267
Mantel-Haenszel Chi-Square	1	1.578	0.209
Fisher's Exact Test (Left)			0.923
(Right)			0.132
(2-Tail)			0.238
Phi Coefficient		0.056	
Contingency Coefficient		0.056	
Cramer's V		0.056	

Sample Size = 504

TABLE OF PRESS5 BY TF

PRESS5	TF		Total
	F	T	
N	70	374	444
Frequency	13.89	74.21	88.10
Percent	15.77	84.23	
Row Pct	85.37	88.63	
Col Pct			
Y	12	48	60
Frequency	2.38	9.52	11.90
Percent	20.00	80.00	
Row Pct	14.63	11.37	
Col Pct			
Total	82	422	504
Frequency	16.27	83.73	100.00
Percent			
Row Pct			
Col Pct			

STATISTICS FOR TABLE OF PRESS5 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.696	0.404
Likelihood Ratio Chi-Square	1	0.663	0.416
Continuity Adj. Chi-Square	1	0.420	0.517
Mantel-Haenszel Chi-Square	1	0.694	0.405
Fisher's Exact Test (Left)			0.253
(Right)			0.846
(2-Tail)			0.455
Phi Coefficient		-0.037	
Contingency Coefficient		0.037	
Cramer's V		-0.037	

Sample Size = 504

TABLE OF PRESS6 BY TF

PRESS6		TF		
Frequency				
Percent				
Row Pct				
Col Pct	F	T		Total
N	60	303		363
	11.90	60.12		72.02
	16.53	83.47		
	73.17	71.80		
Y	22	119		141
	4.37	23.61		27.98
	15.60	84.40		
	26.83	28.20		
Total	82	422		504
	16.27	83.73		100.00

STATISTICS FOR TABLE OF PRESS6 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.064	0.800
Likelihood Ratio Chi-Square	1	0.064	0.800
Continuity Adj. Chi-Square	1	0.014	0.906
Mantel-Haenszel Chi-Square	1	0.064	0.801
Fisher's Exact Test (Left)			0.646
(Right)			0.458
(2-Tail)			0.893
Phi Coefficient		0.011	
Contingency Coefficient		0.011	
Cramer's V		0.011	

Sample Size = 504

TABLE OF PRESS7 BY TF

PRESS7	TF		Total
	F	T	
N	66	355	421
	13.10	70.44	83.53
	15.68	84.32	
	80.49	84.12	
Y	16	67	83
	3.17	13.29	16.47
	19.28	80.72	
	19.51	15.88	
Total	82	422	504
	16.27	83.73	100.00

STATISTICS FOR TABLE OF PRESS7 BY TF

Statistic	DF	Value	Prob
Chi-Square	1	0.660	0.417
Likelihood Ratio Chi-Square	1	0.636	0.425
Continuity Adj. Chi-Square	1	0.422	0.516
Mantel-Haenszel Chi-Square	1	0.658	0.417
Fisher's Exact Test (Left)			0.254
(Right)			0.836
(2-Tail)			0.418
Phi Coefficient		-0.036	
Contingency Coefficient		0.036	
Cramer's V		-0.036	

Sample Size = 504

TABLE OF PRESS1 BY JP

PRESS1	JP		Total
	J	P	
Frequency			
Percent			
Row Pct			
Col Pct			
N	291	128	419
	57.74	25.40	83.13
	69.45	30.55	
	82.67	84.21	
Y	61	24	85
	12.10	4.76	16.87
	71.76	28.24	
	17.33	15.79	
Total	352	152	504
	69.84	30.16	100.00

STATISTICS FOR TABLE OF PRESS1 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.180	0.672
Likelihood Ratio Chi-Square	1	0.181	0.670
Continuity Adj. Chi-Square	1	0.087	0.769
Mantel-Haenszel Chi-Square	1	0.179	0.672
Fisher's Exact Test (Left)			0.388
(Right)			0.707
(2-Tail)			0.700
Phi Coefficient		-0.019	
Contingency Coefficient		0.019	
Cramer's V		-0.019	

Sample Size = 504

TABLE OF PRESS2 BY JP

PRESS2	JP		Total
	J	P	
Frequency			
Percent			
Row Pct			
Col Pct			
N	315	136	451
	62.50	26.98	89.48
	69.84	30.16	
	89.49	89.47	
Y	37	16	53
	7.34	3.17	10.52
	69.81	30.19	
	10.51	10.53	
Total	352	152	504
	69.84	30.16	100.00

STATISTICS FOR TABLE OF PRESS2 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.000	0.996
Likelihood Ratio Chi-Square	1	0.000	0.996
Continuity Adj. Chi-Square	1	0.000	1.000
Mantel-Haenszel Chi-Square	1	0.000	0.996
Fisher's Exact Test (Left)			0.571
(Right)			0.554
(2-Tail)			1.000
Phi Coefficient		0.000	
Contingency Coefficient		0.000	
Cramer's V		0.000	

Sample Size = 504

TABLE OF PRESS3 BY JP

PRESS3		JP		
Frequency				
Percent				
Row Pct				
Col Pct	J	P	Total	
N	287	123	410	
	56.94	24.40	81.35	
	70.00	30.00		
	81.53	80.92		
Y	65	29	94	
	12.90	5.75	18.65	
	69.15	30.85		
	18.47	19.08		
Total	352	152	504	
	69.84	30.16	100.00	

STATISTICS FOR TABLE OF PRESS3 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.026	0.871
Likelihood Ratio Chi-Square	1	0.026	0.871
Continuity Adj. Chi-Square	1	0.001	0.970
Mantel-Haenszel Chi-Square	1	0.026	0.871
Fisher's Exact Test (Left)			0.616
(Right)			0.481
(2-Tail)			0.901
Phi Coefficient		0.007	
Contingency Coefficient		0.007	
Cramer's V		0.007	

Sample Size = 504

TABLE OF PRESS4 BY JP

PRESS4		JP		
Frequency				
Percent				
Row Pct				
Col Pct	J	P		Total
N	275	123		398
	54.56	24.40		78.97
	69.10	30.90		
	78.13	80.92		
Y	77	29		106
	15.28	5.75		21.03
	72.64	27.36		
	21.88	19.08		
Total	352	152		504
	69.84	30.16		100.00

STATISTICS FOR TABLE OF PRESS4 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.500	0.480
Likelihood Ratio Chi-Square	1	0.507	0.477
Continuity Adj. Chi-Square	1	0.346	0.557
Mantel-Haenszel Chi-Square	1	0.499	0.480
Fisher's Exact Test (Left)			0.280
(Right)			0.795
(2-Tail)			0.552
Phi Coefficient		-0.031	
Contingency Coefficient		0.031	
Cramer's V		-0.031	

Sample Size = 504

TABLE OF PRESS5 BY JP

PRESS5		JP		
Frequency				
Percent				
Row Pct				
Col Pct	J	P		Total
N	315	129		444
	62.50	25.60		88.10
	70.95	29.05		
	89.49	84.87		
Y	37	23		60
	7.34	4.56		11.90
	61.67	38.33		
	10.51	15.13		
Total	352	152		504
	69.84	30.16		100.00

STATISTICS FOR TABLE OF PRESS5 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	2.161	0.142
Likelihood Ratio Chi-Square	1	2.080	0.149
Continuity Adj. Chi-Square	1	1.743	0.187
Mantel-Haenszel Chi-Square	1	2.156	0.142
Fisher's Exact Test (Left)			0.945
(Right)			0.095
(2-Tail)			0.177
Phi Coefficient		0.065	
Contingency Coefficient		0.065	
Cramer's V		0.065	

Sample Size = 504

TABLE OF PRESS6 BY JP

PRESS6		JP		
Frequency				
Percent				
Row Pct				
Col Pct	J	P	Total	
N	253	110	363	
	50.20	21.83	72.02	
	69.70	30.30		
	71.88	72.37		
Y	99	42	141	
	19.64	8.33	27.98	
	70.21	29.79		
	28.13	27.63		
Total	352	152	504	
	69.84	30.16	100.00	

STATISTICS FOR TABLE OF PRESS6 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.013	0.910
Likelihood Ratio Chi-Square	1	0.013	0.910
Continuity Adj. Chi-Square	1	0.000	0.996
Mantel-Haenszel Chi-Square	1	0.013	0.910
Fisher's Exact Test (Left)			0.500
(Right)			0.585
(2-Tail)			1.000
Phi Coefficient		-0.005	
Contingency Coefficient		0.005	
Cramer's V		-0.005	

Sample Size = 504

TABLE OF PRESS7 BY JP

PRESS7		JP		
Frequency				
Percent				
Row Pct				
Col Pct	J	P		Total
N	293	128		421
	58.13	25.40		83.53
	69.60	30.40		
	83.24	84.21		
Y	59	24		83
	11.71	4.76		16.47
	71.08	28.92		
	16.76	15.79		
Total	352	152		504
	69.84	30.16		100.00

STATISTICS FOR TABLE OF PRESS7 BY JP

Statistic	DF	Value	Prob
Chi-Square	1	0.073	0.787
Likelihood Ratio Chi-Square	1	0.073	0.787
Continuity Adj. Chi-Square	1	0.019	0.889
Mantel-Haenszel Chi-Square	1	0.073	0.787
Fisher's Exact Test (Left)			0.449
(Right)			0.652
(2-Tail)			0.896
Phi Coefficient		-0.012	
Contingency Coefficient		0.012	
Cramer's V		-0.012	

Sample Size = 504

Appendix G

Bivariate Analyses, Continuous Variables

TTEST PROCEDURE

Variable: AGE

PRESS1	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	411	41.06082725	6.64160562	0.32760625	26.00000000	63.00000000	Unequal	-2.7466	118.3	0.0070
Y	85	43.30588235	6.90414563	0.74885974	29.00000000	58.00000000	Equal	-2.8176	494.0	0.0050

For H0: Variances are equal, F' = 1.08 DF = (84,410) Prob>F' = 0.6182

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Variable: DIRECT

PRESS1	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	399	6.42105263	6.36638139	0.31871772	0	50.00000000	Unequal	-1.6754	103.7	0.0969
Y	82	7.97560976	7.89119780	0.87143702	0	50.00000000	Equal	-1.9283	479.0	0.0544

For H0: Variances are equal, F' = 1.54 DF = (81,398) Prob>F' = 0.0082

Variable: AGE

	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
PRESS2										
N	444	41.61261261	6.74785634	0.32023909	26.00000000	63.00000000	Unequal	1.6656	64.6	0.1006
Y	52	40.01923077	6.50034806	0.90143609	26.00000000	57.00000000	Equal	1.6171	494.0	0.1065

For H0: Variances are equal, F' = 1.08 DF = (443,51) Prob>F' = 0.7658

Variable: DIRECT

	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
PRESS2										
N	430	6.69302326	6.61838209	0.31916673	0	50.00000000	Unequal	0.0625	60.6	0.9504
Y	51	6.62745098	7.13851745	0.99959238	0	40.00000000	Equal	0.0663	479.0	0.9471

For H0: Variances are equal, F' = 1.16 DF = (50,429) Prob>F' = 0.4325

Variable: AGE

	N	Mean	Std Dev	Std Error	Minimum	Maximum	T	DF	Prob> T
PRESS3									
N	402	41.57960199	6.91522458	0.34490005	26.00000000	63.00000000	1.0119	158.7	0.3131
Y	94	40.87234043	5.89374380	0.60789326	29.00000000	52.00000000	0.9166	494.0	0.3598

For H0: Variances are equal, F' = 1.38 DF = (401,93) Prob>F' = 0.0626

Variable: DIRECT

	N	Mean	Std Dev	Std Error	Minimum	Maximum	T	DF	Prob> T
PRESS3									
N	389	6.80205656	6.55778406	0.33249285	0	50.00000000	0.7446	129.8	0.4578
Y	92	6.19565217	7.13024687	0.74337962	0	50.00000000	0.7842	479.0	0.4333

For H0: Variances are equal, F' = 1.18 DF = (91,388) Prob>F' = 0.2863

Variable: AGE

PRESS4	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	392	41.50255102	6.84688169	0.34581975	26.00000000	60.00000000	Unequal	0.3832	172.8	0.7021
Y	104	41.23076923	6.31569284	0.61930464	29.00000000	63.00000000	Equal	0.3656	494.0	0.7148

For H0: Variances are equal, F' = 1.18 DF = (391,103) Prob>F' = 0.3255

Variable: DIRECT

PRESS4	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	377	6.84880637	6.98942628	0.35997377	0	50.00000000	Unequal	1.1861	210.9	0.2369
Y	104	6.09615385	5.32901789	0.52255320	0	40.00000000	Equal	1.0192	479.0	0.3086

For H0: Variances are equal, F' = 1.72 DF = (376,103) Prob>F' = 0.0012

Variable: AGE

PRESS5	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	437	41.49427918	6.62689054	0.31700717	26.00000000	63.00000000	Unequal	0.3975	70.7	0.6922
Y	59	41.08474576	7.52991307	0.98031118	29.00000000	60.00000000	Equal	0.4381	494.0	0.6615

For H0: Variances are equal, F' = 1.29 DF = (58,436) Prob>F' = 0.1665

Variable: DIRECT

PRESS5	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	425	6.71764706	6.63469256	0.32182986	0	50.00000000	Unequal	0.2752	68.8	0.7840
Y	56	6.44642857	6.96985625	0.93138622	0	40.00000000	Equal	0.2859	479.0	0.7751

For H0: Variances are equal, F' = 1.10 DF = (55,424) Prob>F' = 0.5866

Variable: AGE

PRESS6	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	359	41.87465181	6.63479893	0.35017129	26.00000000	63.00000000	Unequal	2.2694	238.1	0.0241
Y	137	40.32116788	6.88448202	0.58818099	26.00000000	58.00000000	Equal	2.3073	494.0	0.0214

For H0: Variances are equal, F' = 1.08 DF = (136,358) Prob>F' = 0.5876

Variable: DIRECT

PRESS6	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
N	346	6.94508671	7.05053326	0.37903902	0	50.00000000	Unequal	1.5157	309.2	0.1306
Y	135	6.02222222	5.53613188	0.47647437	0	36.00000000	Equal	1.3652	479.0	0.1728

For H0: Variances are equal, F' = 1.62 DF = (345,134) Prob>F' = 0.0013

Variable: AGE

	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
PRESS7							Unequal	-0.1124	119.6	0.9107
N	415	41.43132530	6.82206437	0.33488197	26.00000000	63.00000000	Equal	-0.1065	494.0	0.9152
Y	81	41.51851852	6.30101403	0.70011267	30.00000000	56.00000000				

For H0: Variances are equal, F' = 1.17 DF = (414,80) Prob>F' = 0.3879

Variable: DIRECT

	N	Mean	Std Dev	Std Error	Minimum	Maximum	Variances	T	DF	Prob> T
PRESS7							Unequal	0.7064	155.5	0.4810
N	400	6.76250000	6.98017915	0.34900896	0	50.00000000	Equal	0.5583	479.0	0.5769
Y	81	6.30864198	4.85448755	0.53938751	0	28.00000000				

For H0: Variances are equal, F' = 2.07 DF = (399,80) Prob>F' = 0.0001

Appendix H

Logistic Regression Analyses

Pressure 1

CATMOD PROCEDURE

Response: PRESS1	Response Levels (R)=	2
Weight Variable: None	Populations (S)=	418
Data Set: ONE	Total Frequency (N)=	418
Frequency Missing: 86	Observations (Obs)=	418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	3.21	0.0731
SEX	1	2.97	0.0848
AGE	1	4.72	0.0299
ORGLLEVEL	3	0.13	0.9874
COMPENS	3	7.82	0.0498
MARSTAT	1	0.88	0.3487
AO_5	1	1.46	0.2267
DIRECT	1	1.62	0.2033
EI_SCALE	1	2.96	0.0855
SN_SCALE	1	1.99	0.1583
TF_SCALE	1	0.10	0.7485
JP_SCALE	1	0.14	0.7091
LIKELIHOOD RATIO	402	359.21	0.9385

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	2.3193	1.2940	3.21	0.0731
SEX	2	-0.3140	0.1822	2.97	0.0848
AGE	3	-0.0492	0.0226	4.72	0.0299
ORGLLEVEL	4	0.0692	0.3211	0.05	0.8295
	5	0.0624	0.2644	0.06	0.8135
	6	0.0742	0.2749	0.07	0.7873
COMPENS	7	-0.4711	0.2443	3.72	0.0539
	8	0.4732	0.2467	3.68	0.0551
	9	-0.2605	0.2401	1.18	0.2781
MARSTAT	10	0.1777	0.1896	0.88	0.3487
AO_5	11	-0.2329	0.1927	1.46	0.2267
DIRECT	12	-0.0225	0.0177	1.62	0.2033
EI_SCALE	13	0.00899	0.00523	2.96	0.0855
SN_SCALE	14	0.00760	0.00539	1.99	0.1583
TF_SCALE	15	0.00222	0.00692	0.10	0.7485
JP_SCALE	16	-0.00212	0.00567	0.14	0.7091

Pressure 2

CATMOD PROCEDURE

Response: PRESS2	Response Levels (R)= 2
Weight Variable: None	Populations (S)= 418
Data Set: ONE	Total Frequency (N)= 418
Frequency Missing: 86	Observations (Obs)= 418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	0.27	0.6061
SEX	1	2.25	0.1337
AGE	1	3.23	0.0725
ORGLLEVEL	3	3.02	0.3881
COMPENS	3	4.33	0.2284
MARSTAT	1	3.14	0.0764
A0_5	1	0.17	0.6834
DIRECT	1	0.00	0.9737
EI_SCALE	1	0.16	0.6892
SN_SCALE	1	2.27	0.1322
TF_SCALE	1	0.52	0.4726
JP_SCALE	1	0.01	0.9262
LIKELIHOOD RATIO	402	255.05	1.0000

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	-0.8585	1.6648	0.27	0.6061
SEX	2	-0.3734	0.2490	2.25	0.1337
AGE	3	0.0532	0.0296	3.23	0.0725
ORGLLEVEL	4	0.0215	0.4380	0.00	0.9609
	5	0.3696	0.3740	0.98	0.3231
	6	-0.3227	0.3614	0.80	0.3713
COMPENS	7	0.2592	0.3408	0.58	0.4470
	8	-0.2112	0.2786	0.57	0.4484
	9	-0.5609	0.3108	3.26	0.0711
MARSTAT	10	-0.6856	0.3869	3.14	0.0764
A0_5	11	-0.0808	0.1980	0.17	0.6834
DIRECT	12	-0.00079	0.0240	0.00	0.9737
EI_SCALE	13	0.00252	0.00630	0.16	0.6892
SN_SCALE	14	0.0104	0.00689	2.27	0.1322
TF_SCALE	15	0.00619	0.00862	0.52	0.4726
JP_SCALE	16	-0.00067	0.00724	0.01	0.9262

Pressure 3

CATMOD PROCEDURE

Response: PRESS3	Response Levels (R)= 2
Weight Variable: None	Populations (S)= 418
Data Set: ONE	Total Frequency (N)= 418
Frequency Missing: 86	Observations (Obs)= 418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	0.22	0.6399
SEX	1	13.54	0.0002
AGE	1	0.28	0.5969
ORGLLEVEL	3	0.43	0.9340
COMPENS	3	6.41	0.0931
MARSTAT	1	0.84	0.3608
AO_5	1	0.23	0.6351
DIRECT	1	0.14	0.7037
EI_SCALE	1	0.32	0.5713
SN_SCALE	1	1.72	0.1901
TF_SCALE	1	0.00	0.9492
JP_SCALE	1	0.00	0.9601
LIKELIHOOD RATIO	402	372.55	0.8512

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	0.6163	1.3173	0.22	0.6399
SEX	2	0.5846	0.1589	13.54	0.0002
AGE	3	0.0124	0.0234	0.28	0.5969
ORGLLEVEL	4	-0.2389	0.3685	0.42	0.5168
	5	-0.1194	0.3306	0.13	0.7179
	6	-0.1066	0.3386	0.10	0.7529
COMPENS	7	0.6742	0.2727	6.11	0.0134
	8	-0.2144	0.2121	1.02	0.3121
	9	-0.2124	0.2497	0.72	0.3950
MARSTAT	10	-0.1772	0.1939	0.84	0.3608
AO_5	11	0.0788	0.1661	0.23	0.6351
DIRECT	12	-0.00761	0.0200	0.14	0.7037
EI_SCALE	13	-0.00285	0.00503	0.32	0.5713
SN_SCALE	14	0.00713	0.00544	1.72	0.1901
TF_SCALE	15	0.000423	0.00664	0.00	0.9492
JP_SCALE	16	0.000281	0.00562	0.00	0.9601

Pressure 4

CATMOD PROCEDURE

Response: PRESS4	Response Levels (R)=	2
Weight Variable: None	Populations (S)=	418
Data Set: ONE	Total Frequency (N)=	418
Frequency Missing: 86	Observations (Obs)=	418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	0.81	0.3683
SEX	1	3.30	0.0692
AGE	1	0.42	0.5175
ORGLLEVEL	3	2.67	0.4447
COMPENS	3	1.80	0.6156
MARSTAT	1	3.10	0.0782
AO_5	1	5.16	0.0231
DIRECT	1	2.33	0.1268
EI_SCALE	1	1.24	0.2663
SN_SCALE	1	0.05	0.8313
TF_SCALE	1	0.05	0.8309
JP_SCALE	1	0.04	0.8510
LIKELIHOOD RATIO	402	417.32	0.2887

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	1.0781	1.1984	0.81	0.3683
SEX	2	-0.2987	0.1644	3.30	0.0692
AGE	3	-0.0138	0.0213	0.42	0.5175
ORGLLEVEL	4	0.4105	0.3148	1.70	0.1923
	5	-0.00689	0.2558	0.00	0.9785
	6	-0.2275	0.2590	0.77	0.3798
COMPENS	7	-0.1692	0.2297	0.54	0.4615
	8	0.2031	0.2067	0.97	0.3259
	9	0.1229	0.2394	0.26	0.6076
MARSTAT	10	-0.3764	0.2137	3.10	0.0782
AO_5	11	0.3349	0.1474	5.16	0.0231
DIRECT	12	0.0332	0.0217	2.33	0.1268
EI_SCALE	13	0.00526	0.00473	1.24	0.2663
SN_SCALE	14	0.00105	0.00493	0.05	0.8313
TF_SCALE	15	0.00134	0.00626	0.05	0.8309
JP_SCALE	16	0.000983	0.00523	0.04	0.8510

Pressure 5

CATMOD PROCEDURE

Response: PRESS5	Response Levels (R)=	2
Weight Variable: None	Populations (S)=	418
Data Set: ONE	Total Frequency (N)=	418
Frequency Missing: 86	Observations (Obs)=	418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	1.04	0.3083
SEX	1	1.32	0.2507
AGE	1	0.78	0.3787
ORGLLEVEL	3	0.90	0.8262
COMPENS	3	6.39	0.0939
MARSTAT	1	3.65	0.0559
AO 5	1	1.10	0.2937
DIRECT	1	0.01	0.9065
EI_SCALE	1	0.41	0.5225
SN_SCALE	1	1.16	0.2823
TF_SCALE	1	1.79	0.1815
JP_SCALE	1	0.88	0.3496
LIKELIHOOD RATIO	402	271.18	1.0000

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	1.6137	1.5839	1.04	0.3083
SEX	2	-0.2349	0.2045	1.32	0.2507
AGE	3	0.0239	0.0272	0.78	0.3787
ORGLLEVEL	4	0.0355	0.4356	0.01	0.9350
	5	-0.1774	0.3596	0.24	0.6219
	6	-0.3259	0.3607	0.82	0.3662
COMPENS	7	0.0661	0.3118	0.04	0.8321
	8	0.1877	0.2912	0.42	0.5192
	9	-0.7149	0.2864	6.23	0.0126
MARSTAT	10	0.3951	0.2067	3.65	0.0559
AO 5	11	-0.2303	0.2193	1.10	0.2937
DIRECT	12	0.00285	0.0242	0.01	0.9065
EI_SCALE	13	0.00405	0.00634	0.41	0.5225
SN_SCALE	14	0.00725	0.00675	1.16	0.2823
TF_SCALE	15	-0.0107	0.00804	1.79	0.1815
JP_SCALE	16	-0.00631	0.00674	0.88	0.3496

Pressure 6

CATMOD PROCEDURE

Response: PRESS6	Response Levels (R)= 2
Weight Variable: None	Populations (S)= 418
Data Set: ONE	Total Frequency (N)= 418
Frequency Missing: 86	Observations (Obs)= 418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	0.50	0.4809
SEX	1	1.83	0.1763
AGE	1	4.45	0.0348
ORGLLEVEL	3	1.04	0.7919
COMPENS	3	7.63	0.0543
MARSTAT	1	0.16	0.6880
A0_5	1	0.05	0.8147
DIRECT	1	2.79	0.0951
EI_SCALE	1	0.12	0.7291
SN_SCALE	1	0.73	0.3944
TF_SCALE	1	0.10	0.7486
JP_SCALE	1	1.70	0.1929
LIKELIHOOD RATIO	402	463.02	0.0190

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	-0.7999	1.1348	0.50	0.4809
SEX	2	0.1871	0.1384	1.83	0.1763
AGE	3	0.0424	0.0201	4.45	0.0348
ORGLLEVEL	4	-0.1601	0.3014	0.28	0.5952
	5	-0.2125	0.2589	0.67	0.4118
	6	0.0302	0.2667	0.01	0.9100
COMPENS	7	0.4259	0.2273	3.51	0.0610
	8	-0.3629	0.1833	3.92	0.0477
	9	0.1790	0.2300	0.61	0.4364
MARSTAT	10	0.0641	0.1596	0.16	0.6880
A0_5	11	-0.0334	0.1426	0.05	0.8147
DIRECT	12	0.0358	0.0214	2.79	0.0951
EI_SCALE	13	-0.00153	0.00441	0.12	0.7291
SN_SCALE	14	-0.00401	0.00471	0.73	0.3944
TF_SCALE	15	-0.00185	0.00579	0.10	0.7486
JP_SCALE	16	0.00643	0.00494	1.70	0.1929

Pressure 7

CATMOD PROCEDURE

Response: PRESS7	Response Levels (R)= 2
Weight Variable: None	Populations (S)= 418
Data Set: ONE	Total Frequency (N)= 418
Frequency Missing: 86	Observations (Obs)= 418

MAXIMUM-LIKELIHOOD ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	5.06	0.0245
SEX	1	0.00	0.9790
AGE	1	0.09	0.7679
ORLEVEL	3	5.03	0.1699
COMPENS	3	1.64	0.6506
MARSTAT	1	0.02	0.8792
A0_5	1	0.71	0.3996
DIRECT	1	0.22	0.6391
EI_SCALE	1	0.40	0.5254
SN_SCALE	1	4.44	0.0351
TF_SCALE	1	1.21	0.2710
JP_SCALE	1	0.30	0.5850
LIKELIHOOD RATIO	402	363.63	0.9155

ANALYSIS OF MAXIMUM-LIKELIHOOD ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	2.9826	1.3260	5.06	0.0245
SEX	2	0.00427	0.1622	0.00	0.9790
AGE	3	0.00673	0.0228	0.09	0.7679
ORLEVEL	4	-0.1387	0.2936	0.22	0.6365
	5	0.3124	0.2561	1.49	0.2226
	6	0.5183	0.2676	3.75	0.0528
COMPENS	7	-0.2613	0.2457	1.13	0.2876
	8	0.1800	0.2322	0.60	0.4382
	9	-0.0412	0.2559	0.03	0.8722
MARSTAT	10	-0.0284	0.1866	0.02	0.8792
A0_5	11	-0.1477	0.1753	0.71	0.3996
DIRECT	12	0.00996	0.0212	0.22	0.6391
EI_SCALE	13	-0.00333	0.00524	0.40	0.5254
SN_SCALE	14	-0.0120	0.00568	4.44	0.0351
TF_SCALE	15	-0.00744	0.00676	1.21	0.2710
JP_SCALE	16	0.00313	0.00573	0.30	0.5850

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