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The determinants of employee job satisfaction: An empirical test of a causal model

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THE DETERMINANTS OF EMPLOYEE JOB SATISFACTION: AN EMPIRICAL TEST OF A CAUSAL MODEL

by

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CERTIFICATE OF APPROVAL

PH.D THESIS

This is to certify that the Ph.D thesis of

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has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Hospital and Health Administration at the August 1989 graduation.

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To the Memory of My Parents, Richard Izevbizua and Grace Ewenagie Agho.

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ABSTRACT

A causal model of job satisfaction was empirically tested using longitudinal data collected from 415 part-time and full-time employees of a 327-bed Veterans Administration Medical Center located in the midwest. The causal effects of opportunity, work involvement, routinization, autonomy, role ambiguity, role conflict, role overload, work group cohesion, distributive justice, internal labor market, supervisory support, and task significance were investigated. The biasing effects of positive and negative affectivity were controlled for. Multiple regression procedures were used to evaluate the extent to which statistical assumptions were violated and LISREL maximum likelihood procedures were used to estimate four different structural equation models. The significant determinants of job satisfaction, in the order of their importance, were: routinization, distributive justice, positive affectivity, negative affectivity, work involvement, and opportunity. A total of 55 percent of the variance in job satisfaction was explained. Suggestions for future research and recommendations for management are advanced.

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CHAPTER I

INTRODUCTION

Statement of the Objective

The objective of this dissertation is to estimate a causal model of job satisfaction among employees of work organizations. The proposed model is based on the causal model of job satisfaction, which is a sub-part of a comprehensive model of turnover developed by Price and Mueller (Price and Mueller, 1981, 1986b). These authors' model was based on observations of organizational operations and a critical review of existing reports of empirical investigations of the determinants of job satisfaction. However, even though the Price and Mueller model has had significant success in explaining job satisfaction, it still has some limitations. The causal model estimated in this dissertation represents a major revision and modification of the Price and Mueller model. The revisions made are based on the results obtained from earlier tests of the model and on reviews of current job satisfaction literatures.

Definition of Job Satisfaction

Job satisfaction is the degree to which individuals like their jobs (Smith et al., 1969). Job satisfaction is different from other types of satisfaction, such as life satisfaction. Job satisfaction deals with the emotional state of employees resulting from the appraisals of their jobs in a work organization.

The concept of job satisfaction is related to but distinguishable from the concepts of job involvement and organizational commitment. The differences between these concepts may be apparent from their definitions. Job involvement is defined as a cognitive belief state which reflects the degree of psychological identification with one's job (Kanungo, 1982).

In contrast to job satisfaction and job involvement, organizational commitment is usually defined as the extent to which an employee identifies with and is attached to an organization. Mowday et al. (1982) identify three components of organizational commitment: (1) a strong belief in and acceptance of the organization's goals and values, (2) a willingness to exert considerable effort on behalf of the organization, and (3) a strong desire to maintain membership in the organization.

Brooke et al. (1988) have provided a strong empirical evidence to validate the assumption that job satisfaction,

job involvement, and organizational commitment are related but distinct concepts. Using a sample of 577 full-time employees of a 327-bed Veterans Adminstration Medical Center and a confirmatory factor analysis technique, it was shown that these concepts are related but empirically distinct. The findings of this study are consistent with the consensus among researchers who have examined the relationship between job satisfaction and job involvement (Lodahl and Kejner, 1965; Lawler and Hall, 1970; Locke, 1976; Rabinowitz and Hall, 1977; Hall and Mansfield, 1971; Mowday, et al., 1979; Kanungo, 1982) and those who have examined the relationship between job satisfaction and organizational commitment (Kanungo, 1982; Price and Mueller, 1986b; Locke, 1976; Steers, 1977; Mowday et al., 1979).

Traditionally, the concept of job satisfaction has been viewed either as a global (Brayfield and Rothe, 1951; Quinn and Staines, 1979) or as a dimensional (Smith et al., 1969) phenomena. The global approach to job satisfaction deals with the overall degree to which employees like their jobs, whereas the dimensional approach deals with the degree to which they like different facets of their job such as pay, supervision, promotion, and co-workers. Although both approaches are equally relevant, the global approach is preferred in this study because the different facets (i.e. pay, supervision, promotion, co-worker) of the job are

considered as organizational variables which may influence employees' overall job satisfaction.

The proposed model is limited to employees of work organizations. Work organizations include any social system, such as business firms, hospitals, schools, and government agencies, in which members receive monetary compensation for their services. Other organizations, such as churches, trade unions, and professional associations are herein referred to as "voluntary associations." Members of these organizations may or may not be compensated for their services. Some of the services rendered to these organizations are done for personal gratification.

The importance of job satisfaction

Job satisfaction has been one of the most studied subject in the field of industrial and organizational psychology. Systematic attempts to study job satisfaction dates back to the 1930's. Since then, literally thousands of books, articles, and dissertations have been written on the subject. These efforts clearly demonstrate the importance of the subject to researchers, managers, employees, and to people in general. Taken cumulatively, these studies have provided substantial empirical evidence of the effects of job satisfaction on a variety of organizational variables (i.e turnover, absenteeism, and

organizational commitment) and individual variables (i.e life satisfaction, physical health, longevity, mental health, patient satisfaction, patient's compliance with medical regimen).

Job satisfaction has been shown to play a significant role in employee's absenteeism and turnover (Mobley et al., 1978; Beehr and Gupta, 1978; Steers and Rhodes, 1978; Bluedorn, 1979; Cotton and Tuttle, 1986; Dalessio et al., 1986; Martin, 1979; Martin and Hunt, 1980; Michaels and Spector, 1982; Nicholson 1977; Miller et al., 1979; Parasuraman, 1982; Price and Mueller, 1981, 1986b; Spencer et al., 1983; Thompson and Terpening 1983; Waters and Roach, 1973, 1979; Brooke, 1986; Iverson, 1987). It should be noted, however, that the job satisfaction and absenteeism relationship is less well supported (Nicholson et al., 1976). In general, these studies suggest that job satisfaction has positive impact on employees' decision to attend work regularly and to maintain membership in a work organization.

Research has shown that job satisfaction can affect employee's level of organizational commitment (Angle and Perry, 1981; Buchanan, 1974; Hrebianik and Alutt, 1973; Koch and Steers, 1978; Steers, 1977; Wakefield, 1982; Reichers, 1985; Price and Mueller, 1986b; Sorenson, 1985). The implication of these findings is that a high level of job

satisfaction may increase the extent to which an employee is able to identify with and be involved in his organization. Although these findings are consistent with the general accepted view in the literature, a recent study by Bateman and Strasser (1984) has questioned this view. These authors argue that job satisfaction is not a determinant of organizational commitment, rather it is organizational commitment that influences job satisfaction. A more recent attempt by Curry et al. (1986) to replicate Bateman and Strasser study did not provide support for the dissenting view.

The effects of job satisfaction are not limited to the organization. On the individual level, job satisfaction has been linked to life satisfaction (Weitz, 1952; Iris and Barrett, 1972; Campbell et al., 1976; Kornhauser, 1965), physical health (Herzberg et al., 1959; Burke, 1970; Chadwich-Jones, 1969; Sales, 1969; Sales and House, 1971), longevity (Palmore, 1969), and mental health (Kornhauser, 1965; Kahn, 1981; Gechman and Wiener, 1975). These studies suggest that job satisfaction is positively related to employees' life satisfaction, physical health, longevity, and mental health.

A few major studies have demonstrated that a high degree of job satisfaction among medical professionals is positively related to patient satisfaction and patient's

compliance with medical regimen (Weisman and Nathanson, 1985; Hay et al., 1987). These studies imply that high degree of job satisfaction among medical professionals may enhance the relationship between medical staff and patients. Since poor medical staff-patient relationship has been identified as one of the major factors responsible for the increasing malpractice suit crisis (Blum, 1957; Somers and Somers, 1961; U.S DHEW, 1973), these studies also imply that high degree of job satisfaction among medical professionals may improve medical staff-patient relationships and thus curtail the medical malpractice crisis.

Thesis Outline

The dissertation is organized as follows: Chapter II presents the proposed causal model of job satisfaction and indicates the revisions and modifications made in the Price and Mueller model. Chapter III describes the research site, the sample, data collection procedures, measurement, and data analysis strategy. Chapter IV presents the results of the comparative analysis of subgroup differences on job satisfaction, LISREL procedures used to estimate four different structural equation models, LISREL procedure used to examine the contributions of the correlates to the explanatory power of the causal model, and the results of the exploratory investigation of the effect of pay on job

satisfaction. Finally, Chapter V presents the summary and discussion of the results, recommendation for management, and recommendation for future research.

CHAPTER II

THE CAUSAL MODEL

The aim of this chapter is to introduce and discuss the causal model of job satisfaction. The causal model presented in this section represents a revision and modification of the Price and Mueller (1986b) model. The path diagram of the causal model is illustrated in Figure 1. The definitions of the variables in the causal model is summarized in Table 1.

The discussion begins with the description of the independent variables and justification for their selection. This is followed by description of the control variables and correlates. The next section presents the assumptions upon which the proposed relationship between the endogenous and exogenous variables are based. The final section describes the revisions and modifications which have been made on the Price and Mueller (1986b) model.

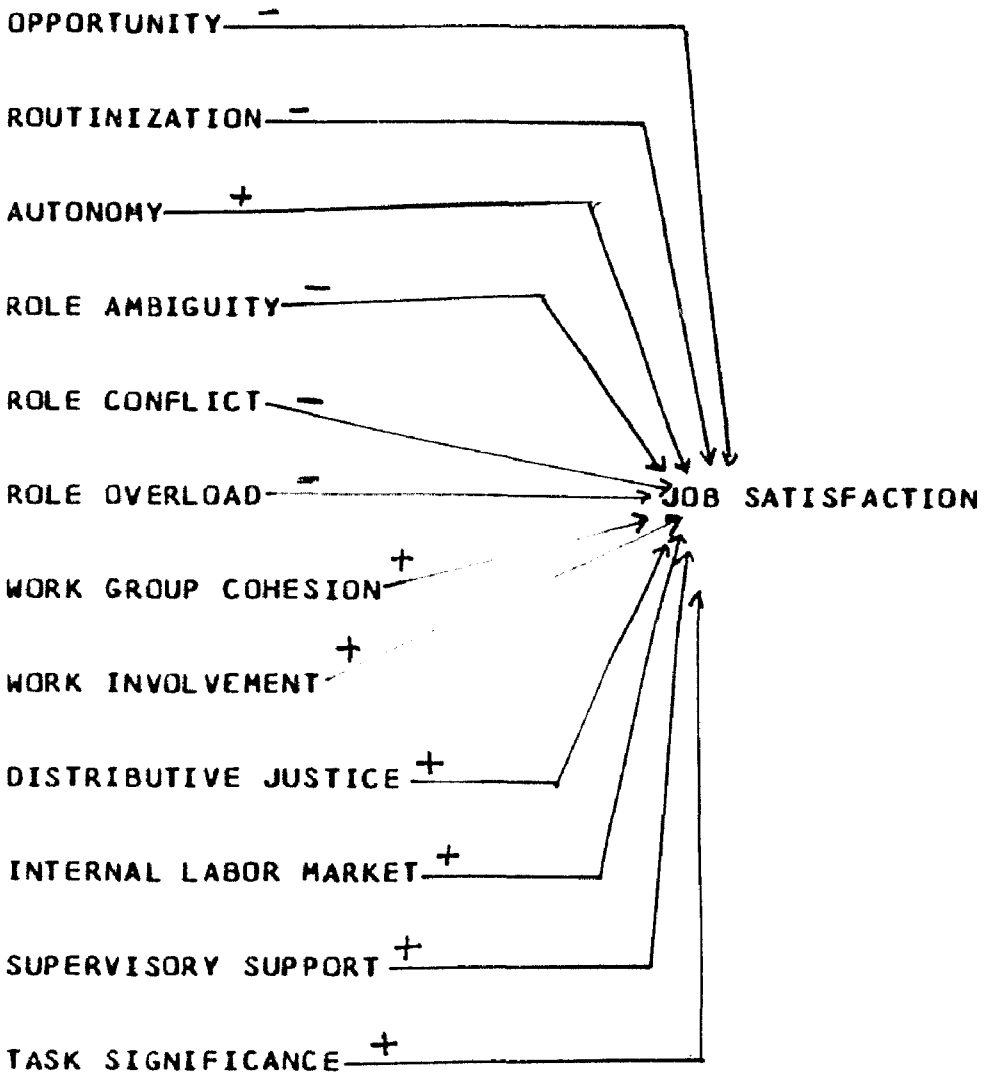

Figure 1. Path diagram of the causal model of job satisfaction

Table 1

Definition of variables in
th causal model

Variable	Definition
1. Opportunity	availability of alternative jobs in the organization's environment
2. Routinization	degree to which jobs in an organization are repetitive
3. Autonomy	degree to which employees have freedom to act independently on the job
4. Role Ambiguity	degree to which there is a discrepancy between the amount of information a person has and the amount he requires to perform his role adequately
5. Role Conflict	degree to which incompatible demands are made upon an individual by two or more persons whose jobs are functionally interdependent with that of the individual
6. Role Overload	degree to which various role expectations exceed the amount of time and resources available for their accomplishments
7. Work Group Cohesion	extent to which employees have close friends in their immediate work units
8. Work involvement	normative belief in the centrality of work role in one's life
9. Distributive Justice	degree to which rewards and punishments are related to performance inputs

Table 1 (cont.)

Variable	Definition
10. Internal Labor Market	refers to the extent to which the structure of the jobs within an organization is characterized by the existence of job ladders, entry limited to the bottom, and upward mobility which is accompanied by a progressive development of skill and knowledge
11. Supervisory Support	degree to which supervisors are helpful in job-related matters
12. Task Significance	degree to which an individual's job contributes significantly to the overall organizational work process

Variables

Independent Variables

Opportunity is the availability of alternative jobs in the organization's environment (Price and Mueller, 1986a). The degree of opportunity is assumed to be high when there is a large number of alternative jobs for which an employee is qualified. Whereas, the degree of opportunity is assumed to be low when there are few alternative jobs for which an employee is qualified. In this research, the definition of opportunity is restricted to the availability of jobs outside the organization, and not the availability of jobs within the organization. Opportunity is an environmental variable which is beyond the control of the organization.

It is hypothesized that opportunity has a negative impact on job satisfaction. This hypothesis is well supported in the literature (Hulin et al., 1985; Miller et al., 1979; Smith et al., 1969; Iverson, 1987; Price and Mueller, 1986b; Pond and Geyer, 1987; Mobley et al., 1978).

Routinization is the degree to which jobs in an organization are repetitive (Perrow, 1967). A job is expected to have a high degree of routinization if the job does not require employees to use their skills, experience, and knowledge. Materials pertinent to routinization can be found under the discussion of "exception" (Withey et al., 1983), and "variety" and "repetitiveness" (Hackman and Oldham, 1975; Sims et al., 1976; Porter and Steers, 1973; Cotton and Tuttle, 1986).

The inclusion of routinization in the causal model is based on a strong empirical evidence which support the proposition that there is a negative causal relationship between routinization and job satisfaction (Eichar and Thompson, 1986; Hackman et al., 1978; Hackman and Lawler, 1971; Kohn and Schooler, 1973; Turner and Lawrence, 1965; Porter and Steers, 1973; Farrell, 1977; Locke, 1976; Katz and Kahn, 1978; Martin, 1979; Price and Mueller, 1981, 1986b; Price and Bluedorn, 1980; Thompson and Terpening, 1983; Brooke, 1986; Iverson, 1987; Curry, et al., 1985).

Autonomy is the degree to which employees have freedom to act independently on the job. The highest degree of autonomy exist when an individual employee has total freedom to decide what and how the job should be done, whereas the lowest degree of autonomy exist when an individual employee has to depend on others in the immediate work environment to dictate what and how the job should be done. Materials pertinent to autonomy can be found under the discussion of "power" (Albrow, 1970; Kahn et al., 1964), "participative decision making" (Holdaway et al., 1975; Martin, 1979; Price and Bluedorn, 1980; Alutto and Belasco, 1977; Caplan et al., 1975), "freedom," and "independence" (Locke, 1968; Maimon and Ronen, 1978; Marsh and Mannari, 1977; Mowday and Spencer, 1981; Sims et al., 1976; Waters and Roach, 1971), and "centralization" (Price and Mueller, 1981, 1986b; Iverson, 1987; Farrell, 1977; Brooke, 1986), "control" (Sutton and Kahn, 1987; Thompson, 1981), "alienation" (Blauner, 1964; Seeman, 1972), "authority" (Kay, 1974), and "responsibility" (Herzberg et al., 1959).

There is strong empirical support for the inclusion of the autonomy variable in the model. It is well established in the literature that autonomy has a positive impact on job satisfaction (Hackman and Lawler, 1971; Nicholson et al., 1977; Price and Mueller, 1981, 1986b; Brooke, 1986; Iverson, 1987; Hackman, Pearce, and Wolfe, 1978; Karasek, 1979;

Porter and Lawler, 1965; Turner and Lawrence, 1965; Vroom, 1964; Weaver, 1977; Tetrick and LaRocco, 1987; Slavitt et al., 1978; Curry et al., 1985; Farrell, 1977; Caplan et al., 1975).

Role ambiguity, Role conflict and Role overload are three role stressors which a number of researchers (Kahn et al., 1964; Rizzo et al., 1970; Schuler, 1980; Locke, 1976; Hollon and Chesser, 1976; French and Caplan, 1973; House and Rizzo, 1972) have identified as potential determinants of job satisfaction. Role ambiguity is defined as the degree to which there is a discrepancy between the amount of information a person has and the amount he requires to perform his role adequately (Kahn et al., 1964). In general, an employee is more likely to experience role ambiguity when he is unclear about what is expected of him. Materials pertinent to role ambiguity can be found under discussion of "instrumental communication" (Price and Mueller, 1981, 1986b; Iverson, 1987). An extensive amount of research has been conducted on the effect of role ambiguity on job satisfaction (Rizzo et al., 1970; Kahn et al., 1964; House and Rizzo, 1972; Hammer and Tosi, 1974; Schuler, 1975; Greene and Organ, 1973; Brooke, 1986; Keller, 1975; Szilagyi et al., 1975; Lyons, 1971). These research findings provided the basis for hypothesizing that role ambiguity has a negative impact on job satisfaction.

Role conflict is related but distinct from the concept role ambiguity (Miles and Perreault, 1976; Rizzo et al., 1970; Tosi, 1971; Schuler et al., 1977; Schwab et al., 1983). Unlike role ambiguity, role conflict refers to the degree to which incompatible demands are made upon an individual by two or more persons whose jobs are functionally interdependent with that of the individual (Kahn et al., 1964). Kahn and French (1970) note that role conflict may occur when two or more sets of role expectations occur simultaneously such that compliance with one makes compliance with the other more difficult or impossible. Evidence suggest that role conflict has a negative impact on job satisfaction (Tosi and Tosi, 1970; Tosi, 1971; Rizzo et al, 1970; Keller, 1975; Nicholson and Goh, 1983; Szilagyi, 1977; Szilagyi et al., 1975; House and Rizzo, 1972; Kahn et al., 1964). It is, therefore, hypothesized that role conflict has a negative impact on job satisfaction.

Role overload is one dimension of role stressor that is, often times, ignored in studies examining the effects of role stress on job attitudes. The literature on role stress suggests that role overload is a related but distinct concept from role ambiguity and role conflict (Burke and Belcourt, 1974; MacKimmon, 1978; Kahn, 1973). Role overload is the degree to which various role expectations exceed the

amount of time and resources available for their accomplishments (Miles and Perreault, 1976). Role overload is not neccessarily the same as hard work, or tasks which involve heavy responsibilities and/or long hours continuing over long periods of time (Jaques, 1966). These job situations are not sufficient factors to cause role overload. Role overload is only likely to occur when an employee finds himself being given tasks which are unmanageable because of lack of time and resources or the assigned tasks are beyond his personal capabilities.

Materials pertinent to role overload can be found under discussion of "work load" (Curry et al., 1986; Price and Mueller, 1981). Role overload has been found to exert negative influence on job satisfaction. (Kahn et al., 1964; Bateman, 1980; Curry et al., 1986; Buck, 1972; Beehr et al., 1976; Sales, 1970; Burke, 1970; Burke, 1976). Based on review of the literature, it is hypothesized in this model that role overload has a negative impact on job satisfaction.

Work group cohesion is the extent to which employees have close friends in their immediate work units (Price and Mueller, 1986a). The extent to which employees participate jointly in social activities in and outside the organization may be an indication of the type of friendship that exists among them. The focus here is on immediate work units and

not on the entire work units in the organization. The radiology department in a teaching hospital which is a sub-unit of the department of medicine is considered as a work unit, whereas the department of medicine is not. Materials pertinent to work group cohesion can be found under the discussion of "integration" (Price and Mueller, 1986b).

The importance of work group cohesion as a determinant of job attitudes is well documented in the literature (Mayo 1933, 1945; Roethlisberger and Dickson, 1939). The inclusion of work group cohesion in the causal model is based on empirical evidence which provide support for the hypothesis that work group cohesion has a positive impact on job satisfaction (Nicholson, 1977; Price and Mueller, 1986b; Keller, 1983; Martin and Hunt, 1980).

Work Involvement is a normative belief in the centrality of work role in one's life (Kanungo, 1982). Kanungo (1982) notes that the concept of work involvement is related but distinct from job involvement. According to Kanungo, work involvement refers to an individual personal code of ethics regarding work in general, whereas job involvement refers to cognitive beliefs regarding a specific job.

In general, employees with higher levels of work involvement are more likely to be predisposed to relate positively to their job experience and willing to work than

those with lower levels. Materials pertinent to work involvement can be found under discussion of "professionalism" (Price and Mueller, 1986b), and "motivation" (Robinson et al., 1969; Farrell, 1977).

Research has shown that work involvement has a direct positive effect on job satisfaction (Brooke, 1986; Mottaz 1981, 1985, 1988; Price and Mueller, 1986b). It is, therefore, hypothesized that higher level of work involvement will have a direct positive effect on job satisfaction.

Distributive Justice is the degree to which rewards and punishments are related to performance inputs (Homans, 1961). Performance inputs refer to such things as effort, experience, and education which an employee contribute to the job. Reward refers to pay, promotion, fringe benefits which an organization gives to its members. Punishment refers to demotion, firing, and reprimands which organizations use as sanctions.

In general, the degree of distributive justice is assumed to be high in an organization when rewards and punishments are based strictly on performance inputs. Material pertinent to distributive justice can be found under the discussion of "fairness" and "equity" (Iverson, 1987; Bluedorn, 1982; Carrell and Dittrich, 1978; Goodman et al., 1973; Locke, 1976; Berkowitz et al., 1987).

Existing empirical evidence provides support for the inclusion of distributive justice in the model (Vroom, 1964; Williams and Hazer, 1986; Curry et al., 1985; Curry et al., 1986; Price and Mueller 1981, 1986b; Price and Bluedorn, 1980; Bluedorn, 1982; Martin, 1979). Distributive justice is, therefore, hypothesized to have a direct positive effect on job satisfaction.

Internal Labor Market refers to the extent to which the structure of the jobs within an organization is characterized by the existence of job ladders, entry limited to the bottom, and upward mobility which is accompanied by a progressive development of skill and knowledge (Althauser and Kalleberg, 1981). This concept is different from the concept of opportunity. Internal labor market refers to the labor market within an organization, whereas opportunity refers to the labor market outside the organization.

Materials pertinent to internal labor market can be found under the discussions of "promotional opportunity" (Price and Mueller 1981, 1986a; Brooke, 1986; Martin, 1979; Farrell, 1977; Iverson, 1987; Curry et al., 1986), "promotion from within" (Ouchi, 1981), "opportunity for advancement" (Steers and Rhodes, 1978), and "upward mobility and advancement" (Kraut, 1975; Thompson and Terpening, 1983).

There is strong empirical evidence which suggests that the internal labor market has a direct positive effect on job satisfaction (Lawler, 1973; Porter and Steers, 1973; Price and Mueller 1981, 1986b; Thompson and Terpening, 1983; Curry et al., 1985; Smith et al., 1969; Mamon and Ronen, 1978; Iverson, 1987). It is, therefore, hypothesized that the internal labor market will have a direct positive effect on job satisfaction.

Supervisory Support is the degree to which supervisors are helpful in job-related matters. The amount of supervisory support needed by employees of an organization may vary according to the type of tasks. For example, if the nature of the task to be performed is such that it is highly complex and requires high degree of interaction between employees and their supervisors, supervisory support may have significant impact on how well the job is done and on employee's job satisfaction.

Materials pertinent to supervisory support can be found under the discussions of "leadership behavior pattern" (Bass, 1981; Halpin and Winer, 1957), "employee centered supervision", "partipative leadership style," and "human relation-oriented supervision" (Likert, 1961; Landy and Trumbo, 1976; Fleishman and Harris, 1962). There is considerable empirical support for the direct positive effect of supervisory support on satisfaction which the

causal model proposes (Mottaz, 1985, 1988; Gruenfeld and Kassum, 1973; Oaklander and Fleishman, 1964; Nealey and Blood, 1968; Szilagyi and Simms, 1974; Downey et al., 1975; Jago, 1982; Burke and Wilcox, 1969; Likert, 1961; Martin and Hunt, 1980; Michaels and Spector, 1982; Williams and Hazer, 1986; Neumann, 1973; Perry, 1978). It is, therefore, hypothesized that supervisory support has a positive impact on job satisfaction.

Task Significance is the degree to which an individual's job contributes significantly to the overall organizational work process. Task significance is one of several task characteristics which has received considerable research attention. Previous studies have shown that task significance is strongly related to work attitudes (Hackman and Lawler, 1971; Hackman and Oldham, 1975, 1979; Sims and Szilagyi, 1976; Pierce and Dunham, 1976; Kirsch and Lengermann, 1971; Herzberg, 1966; Blauner, 1964). Although these studies indicate that task significance has direct impact on work attitudes, there is still a need to specifically examine the effect of task significance on job satisfaction. Few studies that have examined this relationship suggest that task significance has direct positive effect on job satisfaction (Mottaz 1981, 1985, 1988; Hackman and Oldham, 1980). In this research, attempt will be made to provide further insight on the effect of task significance on job satisfaction.

Control Variables

This section presents discussions and justification for using negative and positive affectivity variables as controls in this study.

A large number of empirical studies have investigated the factors influencing job satisfaction. In most of these studies, self report measures have been used to assess job characteristics and job satisfaction (Hackman and Lawler, 1971; Hackman and Oldham, 1976; Price and Mueller, 1981, 1986b). There is a growing concern in the literature which suggests that the relationship between job characteristics and job satisfaction may be inflated considerably by dispositional affectivity variables, such as positive affectivity and negative affectivity. By definition, positive affectivity is the degree to which one feels enthusiastic across time and situation (Watson, Pennebaker, and Folger, 1987). Negative affectivity is the degree to which one feels self-dissatisfaction across time and situation (Watson and Clark, 1984).

Based upon an exhaustive review of the literature regarding positive affectivity and negative affectivity, Watson and his colleagues (Watson and Clark, 1984; Watson, Pennebaker, and Folger, 1987; Watson, Clark, and Tellegen, 1984; Watson and Tellegen, 1985) concluded among other things that (1) individuals who are high on negative

affectivity are more likely to accentuate the negative aspects of themselves and their environment than those who are high on positive affectivity, (2) individuals who are high on negative affectivity are more likely to report more stress and physical complaints, even in the absence of any stressor or health problem, and (3) negative affectivity and positive affectivity may operate as nuisance variables in job attitude research.

A recent study conducted by Brief et al. (1988) validated these views. Using a sample of 497 managers and professionals, Brief and his colleagues observed a significant reduction in the correlation between self report stress measures and overall job satisfaction after controlling for negative affectivity. In order to circumvent the impact of positive affectivity and negative affectivity, both concepts will be measured and controlled for. This approach is consistent with one of the potential solutions recommended by Brief et al. (1988).

Correlates

Missing from the causal model are a set of correlates (i.e sex, marital status, age, education, duty status, tenure, and occupation). This section provides justification for excluding these correlates from the causal model and briefly indicates how the correlates will be used in this study.

The exclusion of these correlates is based on two major considerations. First, these correlates are mainly demographic and biographic information about the individual that can only be used for descriptive purposes. In contrast to theoretical variables which are used to explain the variation in the degree of job satisfaction, correlates cannot be used to examine the cause of the observed change in job satisfaction. Length of employment (tenure) can be used to illustrate this difference. Tenure, per se, cannot cause the level of job satisfaction to increase or decrease. Rather, there is something abstract about tenure which is causing the degree of job satisfaction to change. According to this causal model, the abstract concepts which are likely to cause tenure to influence the degree to job satisfaction include autonomy, routinization, and work group cohesion. Employees who have stayed longer in the organization may have higher level of job satisfaction than new employees because they are more likely to have more autonomy, perform less routine tasks, and have more friends in their immediate work unit. Since models are abstract statements about causal relationship among variables, the abstract concepts regarding tenure are of more theoretical value than tenure. (For detailed discussion see Price and Mueller, 1986b, p. 25-29.)

The second consideration has to do with the explanatory power of the correlates. While job satisfaction has been shown to vary with such factors as sex (Golembiewski, 1977; Weaver, 1977; Martin and Hanson, 1985), age (Glenn, Taylor, and Weaver, 1977; King et al., 1982; Janson and Martin, 1982; Kalleberg and Loscocco, 1983; Pond and Geyer, 1987), race (Weaver, 1977), education (King et al., 1982; Gruenberg, 1980; Glenn and Weaver, 1982; Mottaz, 1984; Wright and Hamilton, 1979), tenure (Katz, 1978), marital status (King et al., 1982; Seybolt and Gruenfeld, 1976), urban-rural background (Seybolt and Gruenfeld, 1976; Turner and Lawrence, 1965), and occupation (Gruenberg, 1980), many studies have shown that after theoretical variables have been taken into account these factors account for very little variance in job satisfaction (Price and Mueller, 1986b; Brooke, 1986; Iverson, 1987; Campbell et al., 1976; Weaver, 1977; King et al., 1982; Mottaz, 1985). These findings suggest that the theoretical variables in the model captures the abstract factors which are likely to cause the correlates to influence the degree of job satisfaction.

Although these correlates are excluded from the causal model, they are retained in this study to test for model misspecifications and interaction effect. The test for model specification and interaction test will be conducted by evaluating the changes in the regression coefficients and

the proportion of variance in the dependent variable which may occur when the correlates or the interaction terms involving the correlates and the independent variables are added as a group to the regression equation containing the independent variables. If there is a statistically significant and substantive increase in the proportion of explain variance resulting from the addition of the correlates, it will be interpreted as evidence of model misspecification through omission of important variables. On the other hand, if the increase in the proportion of variance resulted from the addition of the interaction terms, it will be used as a basis to question the applicability of a single model to all subgroups.

Assumptions

The proposed relationships between the dependent and independent variables in the model are based on some fundamental assumptions. Stated below are the assumptions.

Five variables are hypothesized to have a negative impact on job satisfaction: opportunity, routinization, role ambiguity, role conflict, and role overload. Specifically, it is proposed that the higher the degree of opportunity, routinization, role ambiguity, role conflict, and role overload, the lower the degree of job satisfaction. These propositions are based on the assumptions that employees

value freedom to explore job possibilities, some degree of variety in their jobs, availability of information on what is expected of them on the job, being free from conflicting demands made by other people, and having reasonable work load.

Seven variables are hypothesized to have positive impact on job satisfaction: autonomy, work group cohesion, work involvement, distributive justice, internal labor market, supervisory support, and task significance. It is proposed that the higher the degree of autonomy, work group cohesion, work involvement, distributive justice, internal labor market, supervisory support, and task significance, the higher the degree of job satisfaction. These propositions are based on the assumptions that employees value the freedom to dictate how they do their job, working with people who are friendly, being employed, having their rewards linked to their performance, job structures that provide them with the possibility for upward mobility, supervisors who are sensitive to their job-related problems, and knowing how their inputs are connected with the overall output of the organization.

Revision of Price and Mueller Model

The aim of this section is to present the Price and Mueller model and to indicate the major revisions and

modifications that have been made. The graphic presentation of the model and the definition of variables are shown in Figure 2 and Table 2, respectively.

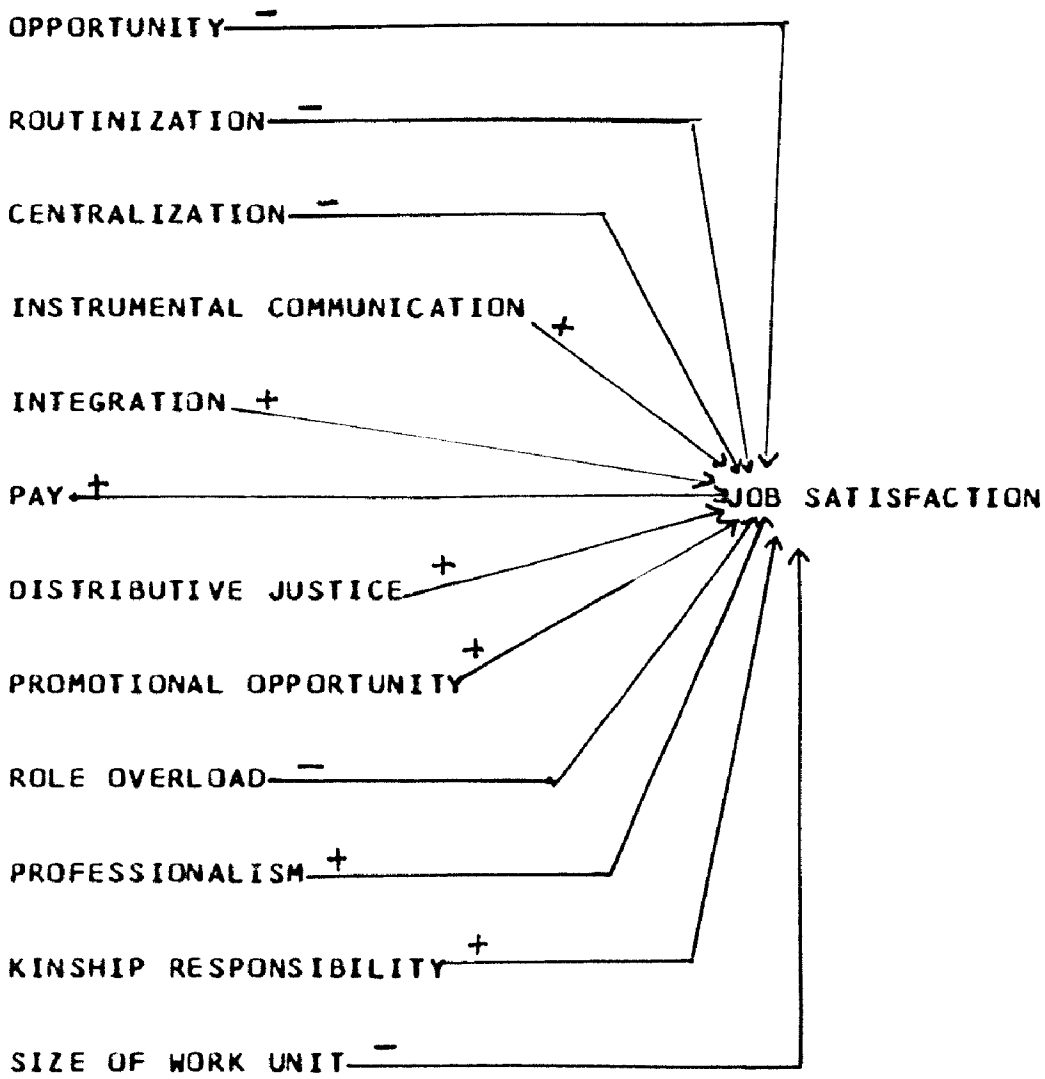

Figure 2. Price and Mueller model of job satisfaction

Table 2

Variable definitions

VARIABLE	DEFINITION
1. Opportunity	availability of alternative jobs in the organization's environment
2. Routinization	degree to which jobs in an organization are repetitive
3. Centralization	degree to which power is concentrated in the organization
4. Instrumental communication	degree to which information about the job is formally transmitted by an organization to its members
5. Integration	degree to which members of an organization have close friends in their immediate work units
6. Pay	money and its equivalents which individuals receive for their services to the organization
7. Distributive justice	degree to which rewards and punishment are related to performance input into the organization
8. Promotional opportunity	degree of potential vertical occupational mobility within the organization
9. Role overload	extent to which demands of the job are excessive
10. Professionalism	degree of dedication by individuals to occupational standards of performance
11. Kinship responsibility	involvement in kinship groups in the local community

The revisions and modifications made to the Price and Mueller model are based on the results of the empirical tests of the model and on reviews of organizational behavior, organizational psychology, and social psychology literatures. The revisions and modifications are made in five areas: (1) variables with significant empirical support were retained; (2) variables that did not contribute significantly to the explanatory power of the model were deleted; (3) variables that were omitted from the model, but have been identified in the literature as potential determinants of job satisfaction were included in the proposed model; (4) some variables were re-defined and re-measured as suggested in the literature; and (5) some variables (negative affectivity and positive affectivity) that have been identified in the literature as potential "nuisance" variables in job attitude research were defined, measured, and controlled for in the proposed model.

The following determinants identified in the Price and Mueller model are retained in the proposed model: opportunity, routinization, integration, role overload, distributive justice, instrumental communication, promotional opportunity, centralization and professionalism. Retention of these variables is based on recent empirical evidence (e.g. Brooke, 1986; Iverson, 1987; Hulin et al., 1985; Elchar and Thompson, 1986; Tetrick and LaRocco, 1987;

Curry, et al., 1986; Curry et. al., 1985; Mottaz 1981, 1985, 1988) that supports the hypothesized relationship between these variables and job satisfaction. It should be noted, however, that the terms integration, centralization, instrumental communication, promotional opportunity and professionalism have been changed to work group cohesion, autonomy, role ambiguity, internal labor market, and work involvement, respectively, in the proposed model. The changes in terminology are based on a need to maintain some degree to consistency.

Three variables were deleted from the model: pay, kinship responsibility, and size of work unit. In the Price and Mueller model, it was hypothesized that pay is positively related to job satisfaction. However, the test of the model showed a significant positive zero order correlation between pay and job satisfaction, but a negative net effect of pay on job satisfaction. Similar findings have been reported in recent studies (Brooke, 1986; Sorensen, 1985). These findings are not consistent with the general consensus among researchers who have demonstrated that pay is positively related to job satisfaction (Bluedorn, 1979; Lawler, 1971, 1973; Lawler and Hall, 1970). Because of the conflicting evidence of the impact of pay on job satisfaction, it was deleted from the causal model. However, since pay is widely cited in the literature as

potential determinant of job satisfaction, it was retained in this study for further examination. Kinship responsibility and size of work unit were deleted from the causal model because of lack of substantial empirical support.

Some other potential determinants of job satisfaction that have received considerable support in the literature were included in the proposed model. For instance, research has shown that role conflict, supervisory support, and task significance are determinants of job satisfaction.

Role overload and promotional opportunity have been re-defined and re-measured in the proposed model. Price and Mueller found role overload to be a non-significant determinant of job satisfaction. This finding is not consistent with the literature. Based on the review of the literature and an examination of how Price and Mueller defined and measured role overload, a broader view of the concept may be preferred. Price and Mueller defined role overload as "the extent to which demands of the job are excessive." This definition represents a narrow view of the concept. It equates heavy workload to role overload. However, the literature on role stress suggest that it is not only the presence of excess demands that induces role overload, rather it is the "degree to which various role expectations exceeds the amount of time and resources

available for their accomplishment" (Miles and Perreault, 1976; Jacques, 1966). Price and Mueller used a single item index to assess role overload. A broader view of the concept suggests a multiple item index method of assessment.

Also, the concept of promotional opportunity, as defined and operationalized in the Price and Mueller model focused on a narrow segment of the internal labor market of the organization. For instance, the concept of promotional opportunity, as defined in the Price and Mueller model, deals only with the extent to which vertical occupational mobility is possible within an organization. It does not, as suggested in the literature, examine the extent to which upward mobility is accompanied by progressive development of skills and knowledge, and the extent to which the job structure within an organization is characterized by the existence of job ladder and a policy which limit entry to the bottom of the ladder (Althauser and Kalleberg, 1981). In the proposed model, a new term "internal labor market" has been devised. The definition and operationalization of the term encompass all of the identified dimensions.

The recognition of the potential impact of negative and positive affectivity variables represents a major revision of the Price and Mueller model (see discussion in control variable section). The inclusion of these variables may significantly improve the explanatory power of the causal model.

CHAPTER III

DATA AND METHODS

This chapter describes the data and procedures which were used to estimate the causal model. The chapter begins with the description of the research site and followed by discussion of the sample, data collection procedures, measurement, and data analysis strategy.

Research Site

The site for this research is a 327-bed Veterans Administration Medical Center (henceforth "VAMC") located in the Upper Midwest. This tertiary care facility provides full range of specialized diagnostic and treatment program, and acute patient care to the veterans population. The range of services provided covers medical (135 beds), surgery (110 beds), intermediate care (18 beds), psychiatry (46 beds), and neurology (18 beds).

The VAMC has a work force of approximately 1288 full-time and part-time employees. In fiscal year 1988, the facility had a workload of 65,728 total patient days of care, 6,925 total patient admissions, 6,921 discharges, average length of stay of 9.5 days, 7,631 outpatients visits, and an occupancy rate of 63.4 percent.

Sample

The unit of analysis for this study was the individual employee. A total of 823 full-time and part-time employees of the VAMC were included in the study (excluding residents, trainees, temporary employees, employees with term appointments, and employees who participated in the pretest of the questionnaire). Residents, trainees, temporary employees, and employees with term appointments were excluded from the study because they are not regular permanent employees of the hospital. A pretest of the questionnaire used to collect data was conducted among thirteen employees of the hospital so as to evaluated the comprehensiveness of the questions. The thirteen employees who participated in the pretest of the questionnaire were excluded from the study because of the concern that those employees have been sensitized to the problem and as such their responses may be baised.

The advantages of including all the regular employees are twofold: (1) since there is a high degree of occupational diversity within the VAMC, a sample of all the employees will produce greater variation in the independent and dependent variables than will be expected if the sample is restricted to a sub-population of the employees, and (2) inclusion of all employees will provide the basis to assess the generalizability of the causal model across occupational groups.

Data Collection

Site Preparation

One month prior to the collection of data, several field visits were made to all major departments and services in the medical center. The objectives of the field visits were to interact with the employees, explain the objectives of the research, and to distribute a fact sheet which described the procedures to be used. In addition to these field visits, the organizational general information bulletin was used to publicize the start of the initial and follow-up survey, generate support for the study, send reminder notices, and thank you messages to the participants. The contents of the fact sheets and notices which appeared in the organizational bulletin are provided in Appendix E. Dillman (1978) suggestions were used as guidelines to administer the survey and sending reminder notices to those who had not returned their questionnaire.

Questionnaire Pretest

Since most of the measures have been used extensively in other studies and at this site few years ago, the pretest was undertaken as a precautionary measure. The primary objective of the pretest was to reaffirm the accuracy of the items and the ease of comprehension of the questions.

The pretest of the initial survey was conducted in two successive steps. First, the questionnaire was distributed to management and union representatives for their review. Second, the questionnaire was administered to a non-random sample of thirteen employees who represented clerical, nursing, housekeeping, engineering, medical records, and medical staff. The pretest resulted in clarification of the initial survey instrument. Since the follow-up was a shortened version of the initial questionnaire, no pretest was conducted (see discussion of follow-up survey in collection procedures section).

Collection Procedures

Data for this study was collected by means of two separate questionnaires which were distributed three months apart. The two questionnaires were administered three months apart so as to establish temporal separation between the determinants and the dependent variable in a direction consistent with the causal relationships hypothesized by the model. The first questionnaire which contained measures of the independent variables was administered in September 1988; the second questionnaire, which contained measures of the dependent variable, was administered December 1988.

A personnel roster which contains information such as employee's names, department, civil service grades,

supervisory status, type of appointment (i.e career, temporary, veteran), annual salary, and duty status (i.e full time, part time) was provided by the VAMC. In order to match responses from the two questionnaires, the personnel roster was used to generate a four-digit numerical code which was assigned to each employee. The personnel roster and codes was destroyed at the end of the study so as to ensure the anonymity of the respondents.

The provisions in the Federal Privacy Act made it impossible to obtain the home addresses of the employees. Due to this restriction, all questionnaires were mailed to the employees through the VAMC internal mailing system. Postage-paid self-addressed envelopes were provided to enable respondents to mail the completed questionnaires directly to the researcher at the university.

Response rate

Questionnaires were distributed to 823 full-time and part-time employees on September 15, 1988. A total of 550 responses were received by the close-out date. This accounts for a 67 percent response rate. This rate is slightly lower than the response rate of 74.9 percent obtained in a similar study conducted at this site few years ago (Brooke, 1986). Considering the fact that response rates to mail questionnaire surveys are generally low, the

67 percent response rate obtained in this study is very high. The distribution of the initial survey responses received by date is presented in Table 3. Over 71.5 percent of the responses were received by the tenth working day at which time the reminder notices were mailed to the employees whose surveys had not been received. The unadjusted means in job satisfaction for the respondents who returned their questionniares before the reminder notices were mailed out was 20.89. For those who returned their questionnares after the reminder notices were mailed out, the unadjusted mean was 20.81. The difference in the unadjusted mean between the two groups is minimal. Thus, it is concluded that the measurement period was the same for all participants in the initial survey.

The follow-up questionnaire was distributed to the 550 employees who participated in the initial survey on December 9, 1988. Out of the 550 survey administered, 429 were returned by the close-out date. This accounts for a 78 percent response rate for the follow-up survey and 52 percent for both surveys.

The follow-up survey questionnaire contained items designed to identify respondents who have experienced changes in their work situation during the three-months interval of the administration of the surveys. Respondents were asked to indicate whether they have either been

Table 3

Distribution of Responses
to Initial Survey

Day of Study	Responses Received	Percent	Cumulative Percent
1	79	14.4	14.4
2	78	14.2	28.5
3	38	6.9	35.5
4	33	6.0	41.5
5	51	9.3	50.7
6	29	5.3	56.0
7	35	6.4	62.4
8	19	3.5	65.8
9	8	1.5	67.3
10	23	4.2	71.5
11	11	2.0	73.5
12	25	4.5	78.0
13	23	4.2	82.2
14	10	1.8	84.0
15	31	5.6	89.6
16	12	2.2	91.8
17	4	0.7	92.5
18	6	1.1	93.6
19	6	1.1	94.7
20	5	0.9	95.6
21	8	1.5	97.1
22	2	0.4	97.5
23	4	0.7	98.2
24	2	0.4	98.5
25	1	0.2	98.7
26	1	0.2	98.9
27	2	0.4	99.3
28	3	0.5	99.8
29	1	0.2	100.0
	550	100.0	

Note Data collection period was from September 15 to October 13, 1988.

promoted, received pay raises, worked under a different

supervisor, worked in the different work unit, or transferred from a part-time employee to full-time employee or vice versa. Out of the 429 employees who returned the follow-up survey, fourteen reported to have experienced at least one of these changes. The fourteen respondents were dropped from the study so as to control for possible confounding effects of historical events on the results of the study. The remaining 415 cases, accounting for a 50.4 percent response rate, was used to estimate the causal model. Table 4 presents the distribution of follow-up survey responses by date received. Over 67.2 percent of the returns were received by the fifth day at which time reminder notices were mailed to participants who had not returned their questionnaires and 94.5 percent were received within ten days. The unadjusted means in job satisfaction for the respondents who returned their questionnaires before the reminder notices were mailed out was 20.83. For those who returned their questionnaires after that date, the unadjusted mean was 20.16.

Because of the fast rate at which the questionnaires were received in the follow-up survey and lack of statistical or substantial differences in the unadjusted means in job satisfaction between those who returned their questionnaire early and those who returned theirs late, it is assumed that the measurement period was essentially the same for all participants.

Table 4

Distribution of Responses
to Follow-up Survey

Day of Study	Responses Received	Percent	Cumulative Percent
1	11	2.7	2.7
2	153	36.9	39.5
3	79	19.0	58.6
4	20	4.8	63.4
5	16	3.9	67.2
6	47	11.3	78.6
7	20	4.8	83.4
8	21	5.1	88.4
9	12	2.9	91.3
10	13	3.1	94.5
11	6	1.4	95.9
12	11	2.7	98.6
13	3	0.7	99.3
14	3	0.7	100.0
	415	100.0	

Note: Data collection was from December 9 to December 22, 1988.

Representativeness of the Sample

According to Kidder (1981), Stone (1978), Dillman (1978), and Warwick and Lininger (1975), the response rate achieved in this study is an adequate representation of the population. Two procedures were used to further examine the representativeness of the sample. The first procedure involved the comparison of the distributions of the

population and the longitudinal sample on sex, occupation, and duty status (i.e full-time and part-time). As can be seen on Table 5, there are no major differences between the population and the longitudinal sample distribution on the above-mentioned characteristics.

The second procedure involved the evaluation of the differences between employees who responded to the initial survey only and those who responded to both surveys. A series of t-tests were performed to examine whether the two groups differ significantly on the means of the independent and demographic variables measured at Time 1 (September, 1989). The significance levels used for the individual comparison was adjusted using the Boneferroni inequality procedure (Pedhazur, 1982). The adjustment resulted in a test-wise significance level of $p<.002$. This adjustment was necessary because these tests do not represent independent comparisons and the large number of comparisons increased the likelihood of a Type 1 error. As can be seen on Table 6, none of the individual comparisons met this level of significance. These two procedures provided the basis for concluding that the longitudinal sample adequately represents the study population and that the results of the study can be generalized to all the employees of the VAMC.

Table 5

Comparison of Population and Sample Characteristics

Category	Population Expected Frequency	Percent	Sample Expected Frequency	Percent
		Sex		
Male	168	40.6	152	36.6
Female	247	59.4	263	63.4
Chi-square, df=1 =2.56				
		Occupational Category		
Professional	221	53.3	233	56.14
Administration	26	6.3	26	6.26
Clerical	66	15.9	71	17.11
Craft	17	4.1	16	3.86
Service	85	20.4	69	16.63
Chi-square, df=4, 4.10				
		Duty Status		
Full-time	353	85.0	364	87.7
Part-time	62	15.0	51	12.3
Chi-square, df=1, 2.29				

Measurement

This section describes the measures which were used to operationalize the variables in the model. All the theoretical variables in the model were measured on a

Table 6

Differences Between Respondents and Non-respondents

Variables	Respondents (N=429) Mean	S.D	Non-respondents (N=121) Mean	S.D	T-Value
Job Satisfaction (1)	20.82	4.91	20.08	5.16	1.45
Opportunity	11.00	3.91	11.15	3.76	-0.38
Routinization	8.52	3.12	8.60	3.19	-0.25
Autonomy	15.70	3.08	15.53	3.20	0.53
Role Ambiguity	5.77	2.19	5.75	2.16	0.09
Role Conflict	9.13	2.95	9.30	2.91	0.56
Role Overload	9.08	3.11	9.50	2.70	-1.35
Work Group Cohesion	25.38	5.42	24.21	5.56	2.09
Work Involvement	9.09	3.24	9.28	3.05	-0.58
Distributive Justice	11.55	3.78	11.01	3.64	1.40
Internal Labor Market	8.49	2.87	8.35	3.11	0.47
Supervisory Support	16.04	5.03	16.12	4.84	-0.16
Task Significance	16.73	2.40	17.15	2.28	1.72
Negative Affectivity	3.30	2.52	3.11	2.23	0.75
Positive Affectivity	7.85	2.93	7.50	2.84	1.17
Marital Status	2.05	1.55	2.00	1.42	0.32
Age	3.49	1.11	3.60	1.07	-0.97
Sex (1=Male)	.36	.48	.49	1.23	-1.79
Education	15.27	2.50	14.76	2.46	1.99
Length of employment	5.00	1.61	5.01	1.60	-0.06

multiple-item ordinal scale. This is a violation of the multivariate analysis assumption which states that all variables must be measured on an interval scale. This apparent voilation is not considered a threat because evidence has shown that ordinal measures can be used in multivariate analysis (Kim, 1975; Cohen and Cohen, 1975;

Pedhazur, 1982). The reliability and validity of the measures used to assess the variables in the model have been demonstrated in previous studies (Price and Mueller, 1986b; Brooke, 1986; House, 1981; Griffin et al., 1980; Hackman and Oldman, 1980; Constable, 1983; Mottaz, 1988; Rizzo et al., 1970; Sims et al., 1976; House and Rizzo, 1972; Quinn and Staines, 1979).

The use of multiple-item-indices permitted the evaluation of the factor structure and the internal consistency of the measures of the theoretical variables. The factor structures and internal consistency were used as indicators of the convergent and discriminant validity, and reliability of the scales, respectively. The summary of means, standard deviations, ranges, and alpha is presented in Table 6.

Validity refers to the extent to which any measuring instrument measures what it is intended to measure (Carmines and Zeller, 1979). Three validity-related issues were examined: (1) the extent to which the multiple items are measuring a single construct (convergent validity), (2) the extent to which the multiple items are measuring related but theoretically distinct constructs (discriminant validity), and (3) the extent to which empirical relationships using the measure are consistent with the theory about the concept being measured (construct validity).

Table 7

Descriptive Statistics

Scale	Number of items	Mean	Standard Deviation	Range	Alpha
Opportunity	4	10.87	3.88	4-20	.87
Routinization	4	8.51	3.11	4-20	.81
Autonomy	4	15.67	3.16	4-20	.81
Role Ambiguity	3	5.79	2.22	3-15	.77
Role Conflict	3	9.12	2.98	3-15	.84
Role Overload	3	9.07	3.10	3-15	.85
Work Group Cohesion	8	25.36	5.43	8-40	.84
Work Involvement	4	9.13	3.25	4-20	.86
Distributive Justice	4	11.57	3.82	4-20	.95
Internal Labor Market	3	8.45	2.82	3-15	.72
Supervisory support	6	16.02	5.03	6-24	.94
Task significance	4	16.75	2.44	4-20	.85
Negative Affectivity	9	3.28	2.53	0-9	.79
Positive Affectivity	11	7.89	2.90	0-11	.83
Job satisfaction (1)	6	20.89	4.90	6-30	.90
Job satisfaction (2)	6	20.60	4.68	6-30	.89

Factor analysis was used to assess the convergent and discriminant validity (Campbell and Fiske, 1959) of the multiple-item measure of the constructs. Factor loadings greater than 0.4 on a single factor were interpreted as evidence of convergent validity. Factor loadings lower than 0.4 on related but theoretically distinct factors was interpreted as evidence of discriminant validity. The maximum likelihood methods of extraction was used and the factor loadings were examined under both the orthogonal and

oblique rotations (Kim and Mueller 1978a, 1978b). Both rotations produced similar results, but the oblique rotation results were more interpretable. The results are provided in Appendix A.

Construct validity was assessed by examining the relationships between Time 1 measures of the independent variables and Time 2 measures of the dependent variable. If the observed relationships are consistent with the theory, that will be taken as evidence of construct validity.

Reliability refers to the extent to which any measuring instrument is able to produce the same results across time and situations (Carmines and Zeller, 1979). Coefficient alpha (unstandardized) was used to estimate the reliability of the multiple item measures (Cronbach, 1951).

Measurement of Dependent Variable

The dependent variable, job satisfaction, was operationalized by a six-item index which Price and Mueller (1981, 1986) adapted from Brayfield and Rothe (1951) to measure the extent of overall satisfaction with the job. The validity and reliability of this index have been demonstrated in previous studies (Price and Mueller 1981, 1986b; Brooke, 1986; Wakefield, 1982; Sorensen, 1985). In this study, the six items formed a single factor with loadings that ranged from .4969 to .8963. Results of the

reliability test revealed that the job satisfaction scale achieved an acceptable level of Cronbach's alpha of .90.

Measurement of Exogenous Variables

Opportunity was operationalized by a four-item index developed by Price and Mueller (1981, 1986) to measure the availability of alternate jobs in the organizational environment. This index has demonstrated satisfactory level of validity and reliability in other studies (Price and Mueller 1981, 1986b; Brooke, 1986; Wakefield, 1982; Sorensen, 1985). In this study, the four items formed a single factor with loadings that ranged from .6315 to .9119. Results of the reliability test revealed that the opportunity scale achieved an acceptable level of Cronbach's alpha coefficient of .87.

Routinization was operationalized by a four-item index adopted from the Price and Mueller (1981, 1986) routinization scale. This index measures the degree to which tasks are repetitive. The validity and reliability of this index have been demonstrated in other rersearch (Price and Mueller 1981, 1986; Brooke, 1986; Wakefield, 1982; Sorensen, 1985). In the present research, the four-items formed a single factor with loading that ranged from .5044 to .7561. Results of the reliability test revealed that the routinization scale achieved a satisfactory level of Cronbach's alpha coefficient of .81.

Autonomy was operationalized by a four-item index adopted from the Job Characteristics Inventory developed by Sims et al., (1976). The index is designed to measure the extent to which employees have control over their work. Griffin and his colleagues (1980) have demonstrated the validity and reliability of this scale. In the present research, the four items formed a single factor with loadings that ranged from .5418 to .7225. Results of the reliability test revealed that the autonomy scale achieved an acceptable level of Cronbach's alpha coefficients of .81.

Role Ambiguity, Role Conflict, and Role Overload were operationalized by items adopted from the role stress questionnaire developed by Rizzo et al., 1970. The scales used in this study consist of four items for role ambiguity, four items for role conflict, and five items for role overload. The validity and reliability of the original scale have been demonstrated (Rizzo et al., 1970; House and Rizzo, 1972; Kahn et al. 1964).

Though it has been demonstrated that the role stress scale is a three factor scale rather than the two factor scale which is widely reported in the literature (Burke and Belcourt, 1974; Mackimmon, 1978; Kahn, 1973), questions regarding the discriminant validity of role ambiguity and

role conflict still persist (Brooke, 1986). Based on this concern, exploratory factor analysis and confirmatory factor analysis was conducted on all the role items. Review of the factor analysis results suggest that role ambiguity, role conflict and role overload are three distinct concepts. Three out of the four role ambiguity items loaded above .40 on a single factor. The item which had a loading of .2302 was dropped from analysis. Also, three out of the four role conflict items loaded above .40 on a single factor. The item which had a loading of .0961 was dropped from analysis. Again, three out of the five role overload items loaded above .40 on a single factor. The two items which had loading of .1154 and .2573 were dropped from analysis. A confirmatory factor analysis conducted on the selected items provided further evidence of the discriminant validity of the role ambiguity, role conflict, and role overload. The confirmatory factor analysis results are presented in Appendix C. Results of the reliability test revealed that the role ambiguity, role conflict, and role overload scales achieved acceptable levels of Cronbach's alpha coefficients of .77, .84, and .85, respectively.

Work Group Cohesion was operationalized by a eight-item index developed by Price and Mueller (1981, 1986) to measure the extent to which employees have close friends in their

immediate work unit. The validity and reliability of the scale have been demonstrated in other research (Price and Mueller, 1986b; Martin and Hunt, 1980). In this present research, the eight items formed a single factor with loadings that ranged from .4761 to .7776. Results of the reliability test revealed that the work group cohesion scale achieved an acceptable level of Cronbach's alpha coefficients of .84.

Work Involvement was operationalized by a four-items index adopted from the scale developed by Kanungo (1982). The scale is intended to measure the extent to which work role occupies a position of centrality in the individual's life. This measure has demonstrated satisfactory validity and reliability (Kanungo, 1982). In this study, the four items formed a single factor with loadings that ranged from .7202 to .8026. Results of the reliability test revealed that the work involvement scale achieved a satisfactory level of Cronbach's alpha coefficient of .86.

Distributive Justice was operationalized with a four-item version of the distributive justice scale developed by Price and Mueller (1981) to measure the degree to which rewards and punishment are related to performance. The validity and reliability of the six-item version of this scale have been demonstrated (Price and Mueller 1981, 1986;

Wakefield 1982; Brooke, 1986; Sorensen, 1985). In this study, the four items formed a single factor with loadings that ranged from .8500 to .8775. Results of the reliability test revealed that the distributive justice scale achieved an acceptable level of Cronbach's alpha coefficient of .95.

Internal labor market was operationalized by a four-item index developed by the author to measure the extent to which there is a career structure within the organization. Three out of the four items formed a single factor with loadings higher than .40. The loadings for the selected three items ranged from .3955 to .9210. The item with loading of .1905 was removed from further consideration. Results of the reliability test revealed that the internal labor market scale achieved an acceptable level of Cronbach's alpha coefficient of .72.

Supervisory support was operationalized with a six-item scale developed by House (1981) to measure the degree to which supervisors are helpful in job-related matters. This scale has demonstrated satisfactory levels of validity and reliability in other studies (House, 1981; Constable, 1983). In this research, the six items formed a single factor with loadings that ranged from .7301 to .8889. Results of the reliability test revealed that the supervisory support scale achieved an acceptable level of Cronbach's alpha coefficient of .94.

Task Significance was operationalized with an seven-item index developed by Mottaz (1987). This scale measures the degree to which an individual's job contributes significantly to the overall organizational work process. Mottaz (1987) reported satisfactory validity and reliability of the scale in a previous study. In the present study, only four out of the seven items formed an interpretable single factor with loading higher than .40. The loadings for the four items ranged from .3995 to .9480. The remaining three items were removed from further consideration. Results of the reliability test using the four items revealed that the task significance scale achieved an acceptable level of Cronbach's alpha coefficient of .85.

Measurement of Control Variables

Positive and negative affectivity were measured by a modified scale of Multidimensional Personality Scale developed by Tellegen (in press). Positive affectivity scale was intended to measure the degree to which an individual is predisposed to be enthusiatic across time and situation. Negative affectivity was intended to measure the degree to which an individual is predisposed to feel self-

dissatisfaction across time and situation. Watson and Folger (1987) have demonstrated that positive and negative affectivity scales are distinct but related. Watson and Tellegen (1985) reported a satisfactory validity and reliability for both scales. In this research, the factor analysis result revealed that positive and negative affectivity formed two distinct factors. The factor loadings on the positive affectivity scale ranged from .3971 to .6709. The loadings on the negative affectivity scale ranged from .3965 to .6273. Results of the reliability test revealed that both scales achieved accceptable levels of Cronbach's coefficient alpha of .82 and .79, respectively.

Measurement of the Correlates

With the exception of marital status, education, length of employment, and age, the information on the correlates were obtained from the roster provided by the VAMC. Specifically, sex and occupation was obtained from records. No statistical procedure was used to assess the validity and reliability of the correlates.

Development of Index

Based on the results of the factor analysis and the internal consistency of the multiple item measures, the index of each construct was developed. As discussed in the section of analytic methods, multiple regression procedures

and the LISREL program were used to estimate the causal model. Though the application and interpretation of the outputs of these procedures are quite similar, different approaches were used to develop the indicators of the constructs for each procedure. The index used for the multiple regression analysis was obtained by summing the multiple indicators of each construct which met the established validity and reliability criteria.

In general, the fewer the number of multiple indicators of each construct the more likely it will be to obtain a better fit of the model. This is particularly true for Lisrel (Joreskog and Sorbom, 1981). Based on this consideration, the number of manifest indicators used to assess each constructs in the model was reduced to three. The three manifest indicators of each construct was obtained by combining items with the highest loadings and items with the lowest factor loadings, combining items with the next highest factor loadings and items with the next lowest factor loadings, and so on. This approach is consistent with the strategy used in previous studies (Brooke, 1986; Brooke et al., 1988). Notes presented in Appendix A identified the items that were combined to form the manifest indicators of each construct.

Analytic Methods

Two statistical procedures were used to estimate the model: (1) multiple regression technique, which is based on ordinary least squares and (2) linear structural equation (LISREL), which is based on the maximum likelihood method.

Multiple Regression

Multiple regression is an ideal statistical procedure when the following assumptions are met: (1) the relations among the variables in the model are linear, (2) variables are measured on an interval scale, (3) there is a low degree of multicollinearity, (4) error terms are normally distributed, (5) homoscedasity, (6) the causal flow is recursive (unidirectional), (7) the effects of the exogenous variables are additive, (8) the relations among the variables are causal, (9) the residuals are not correlated among themselves, and (10) the variables are measured without error (Pedhazur, 1982). Violation of these assumptions can seriously affect the interpretation of the relationship among the constructs and the degree to which the causal model is properly specified. Pedhazur (1982) notes that the assumptions that (1) the causal flow is recursive, (2) variables are measured without error, and (3) the residuals not correlated among themselves are too restrictive especially in non-experimental social and

behavioral research where most of the phenomena studied are unobservable. Because of these limitations, the use of multiple regression was limited to four areas. First, multiple regression technique was used to evaluate the extent to which statistical and causal assumptions are violated, especially the assumption of linearity. Although the assumption of linearity is crucial for the proper application of LISREL, LISREL does not have the capacity to evaluate the extent to which the assumption is met. This is an area where multiple regression has been proven to be more powerful and flexible than LISREL. Second, multiple regression was used to examine whether the model is properly specified. Third, the multiple regression procedure was used to examine the differences in the mean on job satisfaction among various subgroups. Finally, multiple regression was used to investigate the causal effect of pay on job satisfaction.

LISREL

LISREL is a more powerful statistical procedure and is based on less restrictive assumptions than multiple regression. Specifically, LISREL was used extensively in this study because of its relative strengths over multiple regression in two distinctive areas. First, LISREL relaxes the restrictive assumptions required by multiple regression

which states that variables are measured without error and that residuals are not correlated. These assumptions are liable to be erroneous especially when the study in question involves analysis of a causal model with multiple indicators of latent (unobserved) variables, and subjects are measured on the same variable over a period of three months. There is a general consensus among researchers that under these circumstances, LISREL will provide more precise estimates of the linear relationship among the constructs than multiple regression (Pedhazur, 1982; Bentler and Bonnett, 1980; Bentler, 1980; Schmitt and Bedian, 1982). Second, LISREL consist of two parts: the measurement model and the structural equation model. The measurement model represents a confirmatory factor analysis of hypothesized relation between the latent (unobserved) constructs and the manifest (observed) variables. Results of the confirmatory analysis will provide evidence of discriminant validity of the constructs. The structural equation model specifies the causal relations among the latent constructs (Joreskog and Sorbom, 1981). The R-square and path coefficients obtained from the application of LISREL can be interpreted in the same manner as in multiple regression. The R-square will be interpreted as the amount of variance in the dependent variable that is explained or accounted for by the set of independent variables in the model. The path coefficients

will be interpreted as the effect of an independent variable on the dependent variable.

LISREL statistical procedures were used to estimate four different structural equation models. The first model examines the multivariate relationships between the independent variables and job satisfaction. The second model examines the multivariate relationships between the independent variables and job satisfaction after controlling for positive and negative affectivity. This model is based the theory which suggests that failure to control these variables can inflate observed relationships between independent variables and job satisfaction. The focus of this research is on the estimation of this model.

The third model examines the multivariate relationships between the independent variables and job satisfaction after controlling for initial job satisfaction. This model was designed to address two concerns raised in the literature. The first concern has to do with the argument advanced by O'Reilly and his colleagues (1980) who have demonstrated that prior levels of job satisfaction can influence perceptions of and therefore measurements of job characteristics. The second concern is based on the substantive and statistical reasoning advanced by Kessler and Greenberg (1981). These authors have demonstrated that "high initial scores on a variable are associated with

especially large increases in that variable." This evidence suggests that employees job satisfaction scores at Time 2 may depend on their scores at Time 1. The inclusion of Time 1 job satisfaction in the structural equation model represents a way of controlling the effects of prior levels of job satisfaction. The fourth model examines the multivariate relationships between the independent variables and job satisfaction after controlling jointly for positive affectivity, negative affectivity, and initial job satisfaction.

Missing Data

The information about missing data is contained in Table 8. Missing data is not considered to be a major problem in this study. As can be seen, the missing data appeared to be evenly distributed. The number of missing data was less than one percent in all the items. A Listwise procedure was used to treat missing data.

Technical Statistical and Analytic Issues

The model has been proposed as linear and additive. The variability of the independent variables is assumed to be determined by causes outside the causal model, whereas the variability of the dependent variable is assumed to be caused by the independent variables in the model and the

Table 8

Distribution of Missing Cases

VARIABLE	NUMBER OF MISSING	PERCENT
OPPORTUNITY	1	0.2
ROUTINIZATION	0	0.0
AUTONOMY	0	0.0
ROLE AMBIGUITY	0	0.0
ROLE CONFLICT	0	0.0
ROLE OVERLOAD	0	0.0
WORK GROUP COHESION	1	0.2
WORK INVOLVEMENT	0	0.0
DISTRIBUTIVE JUSTICE	0	0.0
INTERNAL LABOR MARKET	1	0.2
SUPERVISORY SUPPORT	0	0.0
TASK SIGNIFICANCE	1	0.0
NEGATIVE AFFECTIVITY	0	0.0
POSITIVE AFFECTIVITY	0	0.0
JOB SATISFACTION (BASELINE)	0	0.0
JOB SATISFACTION (FOLLOW-UP)	0	0.0

error terms of the variables. Furthermore, it is assumed that the degree of multicollinearity is low, that the model is properly specified, that no historical events exist to threaten the validity of the results, that the size of the sample used for analysis is adequate, and that the model fits the data. Violation of these assumptions could pose problem on the interpretation of the results. The discussion presented in this section highlights the procedures used to evaluate the assumptions.

Linearity

It is assumed that the relationship between the dependent and the independent variables is linear. This assumption was tested with the SPSS-X subprogram "Breakdown" procedure (Nie et al., 1975). The tests for linearity revealed that the data did not deviate from linearity at the .05 level of significance. A review of the scatterplots of the standardized residuals provided further evidence of linearity between the constructs. Based on these findings it was concluded that the assumption of linearity was not violated.

Test for Interaction

It is assumed that the effects of the independent variables are additive. That is, there is no interaction among the exogenous variables. Two variables are said to interact when the effect of one variable on some measure of behavior depends upon either the presence or the amount of a second variable (Pedhazur, 1982; Cohen and Cohen, 1975). The presence of interaction may raise questions about the appropriateness of a single model. For example, if there is an interaction effect between sex (e.g. female) and distributive justice it may provide the basis to suggest a separate model for males where distributive justice is not hypothesized as a determinant of job satisfaction.

Two sets of potential interaction effects that are based on well-established theory were examined. The first set involves the interaction between sex, age, and occupation (i.e professional/administration and non-professsional employees). A large body of empirical evidence suggests that the degree of job satisfaction may vary by sex, age, and occupation (Martin and Hanson, 1986; Janson and Martin 1982; Gruenberg, 1980). A test for an interaction effect for this set was conducted by entering the first-order interaction terms into the regression equation after the theoretical determinants have been entered. Interaction effects were tested by examining the statistical significance of each interaction term and the statistically significant increases in the adjusted R-square attributable to the inclusion of all the interaction terms. The multiple regression results revealed that there is a statistically significant increase in the adjusted R-square attributable to the interaction terms. However, none of the individual interaction terms was statistically significant. On the basis of these results, it was concluded that there are no interaction effects involving sex, age, and occupation. Thus, the causal model is generalizable across sex, age, and occupation.

The final sets of interaction test examined the possibility of interaction effect between social support and

role stressors. There has been substantial evidence in the literature which suggest that the degree of role stress experienced by an individual may depend on the level of social support available to him (Georgopoulas and Matejko, 1967; LaRocco et al., 1980; Blau, 1981; House, 1981; Wells, 1982; Maslach, 1982). Three dimensions of social support and role stressor were considered. The dimensions of social support examined were supervisory support, work group cohesion (proxy for co-worker support), and family/spouse support. For role stress, role conflict, role overload, and role ambiguity were examined.

Test for interaction for this set was conducted by entering the nine first-order interaction terms into the regression equation after the theoretical determinants have been examined. The multiple regression results did not provide evidence of significant interaction between social support and role stress. Though the increase in the adjusted R-square was statistically significant, none of the individual interaction term was significant. Based on the results of the two sets of interaction effects examined, it was concluded that the assumption of additivity was not violated.

Multicollinearity

It is assumed that multicollinearity among the independent variables is within acceptable limits. A high degree of multicollinearity (absence of orthogonality among independent variables) may result in imprecise estimation of the regression coefficients. Cohen and Cohen (1975) note that a moderate multicollinearity may not pose a serious threat to the analysis. Evidence suggests that correlations exceeding .80 should be considered a potential threat to the analysis and interpretation of the results (Asher, 1983).

Two sets of analyses were conducted to examine the degree of multicollinearity among the independent variables. First, the correlation of each independent variable with the linear combination of other independent variables (i.e. multiple correlation) was examined. A high multiple correlation was interpreted as the commonality share by a particular variable with other variables in the model. The results of the analysis revealed that routinization (0.50), role ambiguity (0.45), distributive justice (0.43), and supervisory support (0.42) are moderately correlated with the linear combination of other variables (see Table 9).

The second analysis involved the use of the LISREL procedures to estimate the zero-order correlation among the latent constructs in the model. The zero order correlation matrices for the latent constructs are presented in Table 10.

Table 9

Multiple Correlation Among the Independent Variables

Independent Variable	Multiple R	Squared Multiple R
Opportunity	0.42	0.18
Routinization	0.71	0.50
Autonomy	0.58	0.33
Role Ambiguity	0.67	0.45
Role Conflict	0.58	0.34
Role Overload	0.49	0.24
Work Group Cohesion	0.50	0.25
Work Involvement	0.41	0.17
Pay	0.53	0.28
Distributive Justice	0.66	0.43
Internal Labor Market	0.46	0.21
Supervisory Support	0.65	0.42
Task Significance	0.54	0.29
Negative Affectivity	0.50	0.25
Positive Affectivity	0.50	0.25

As can be seen, none of the correlations approached the .80 criteria. However, the moderate correlation between routinization and autonomy (0.49), autonomy and role ambiguity (0.47), role conflict and role ambiguity (0.52), supervisory support and role ambiguity (0.49), and supervisory and distributive justice (0.50) suggest that the results should be interpreted with caution. These analyses provided the basis for concluding that the degrees of multicollinearity among the latent constructs are within acceptable limits.

Table 10

Zero-order Correlation Among
Latent Constructs

var.	Op	Rt	Au	Ra	Rc	Ro	Wc	Wi	Dt	Lm	Su	Ts	Bj
Op	1												
Rt	-.17	1											
Au	-.10	-.49	1										
Ra	.19	.18	-.47	1									
Rc	.20	.04	-.35	.52	1								
Ro	.18	-.30	-.06	.27	.34	1							
Wc	-.07	-.22	.28	-.26	-.28	-.15	1						
Wi	-.06	-.34	.13	-.17	-.06	.11	.18	1					
Dt	-.23	-.36	.38	-.30	-.38	-.10	.41	.28	1				
Lm	-.02	-.26	.20	-.03	-.02	.10	.30	.19	.28	1			
Su	-.16	-.26	.36	-.49	-.42	-.13	.41	.13	.50	.23	1		
Ts	-.07	-.37	.25	-.37	-.11	.02	.31	.24	.25	.23	.24	1	
Bj	-.16	-.54	.44	-.37	-.30	-.05	.33	.41	.49	.22	.45	.46	1

Op=Opportunity; Rt=Routinization; At=Autonomy; Ra=Role ambiguity; Rc=Role conflict; Ro=Role overload; Wc=work group cohesion; Wi=Work Involvement; Dt=Distributive justice; Lm=Internal labor market; Su=Supervisory support; Ts=task significance; Bj=Initial job satisfaction.

Model Specification

A model is said to have been misspecified if the following occurs: (1) irrelevant variables are included in the model, (2) relevant variables are excluded from the model, and (3) the causal ordering of the variables is inappropriate or inconsistent with established theory (Pedhazur, 1982). Violation of this assumption can lead to improper interpretation of the causal effects of the

variables. Standardized regression coefficents can be used to estimate the direct, indirect, and total effects of the independent variables upon the dependent variable only if the causal model is correctly specified and appropriate variables are included in the causal model (Schmitt and Bedian, 1982).

Two strategies were used to evaluate the extent to which the causal model may have been misspecified. The first step involve the suggestions made by Pedhazur (1982) and Asher (1983). These authors indicated that the best strategy to avoid specification error is to develop a causal model that is based on theory and well supported by previous research. As was discussed in Chapter II, the selection of the variables in the model was based on well-established theory and empirical evidence.

The second strategy involves the use of multiple regression procedure to evaluate the changes in the regression coefficients and the proportion of explained variance in the dependent variable which occurred when the correlates (sex, age, education, length of employment, duty status, and marital status) were added as a group to the regression equation containing the theoretical variables. The results indicated that job satisfaction is positively correlated with age and length of employment. However, there was no significant change in the regression

coefficients or increase in the proportion of the explained variance. On the basis of this result, it was concluded that there was no specification error. This finding is consistent with the results obtained in similar studies (Brooke, 1986; Price and Mueller, 1986b; King et al., 1982; Iverson, 1987).

Threats of Historical Events

It is assumed that no significant historical event occurred during the three-months interval between the initial and follow-up surveys which may possibly account for variation in the dependent variable. Two approaches were used to ascertain this assumption. The first approach involved personal discussions the researcher had with some employees and management staff during the field work. Part of the objective of the field work was to interact with the employees and be informed of changes that may occur in the organization. No major structural, administrative, or policy changes were indicated to have taken place during the three-month interval which might confound the results of the study.

The second strategy employed to remove the confounding effect of historical event involves the deletion of respondents who experienced some changes in their work place. In the follow-up questionnaire, respondents were

asked to indicate the changes that have occurred in their work situation during the three-month interval. Specifically, respondents were asked to indicate whether they are still working in the same unit, working under the same supervisor, received pay increase, tranferred to a different department, or transferred from part-time position to a full-time position or vice versa. Out of the 429 responses received from the follow-up survey, fourteen employees indicated at least one of these changes. The fourteen responses were not used in the analysis.

Adequacy of Sample Size

The adequacy of the size of the sample used in this study is of major concern for two critical reasons. First, the value of R-square (squared multiple correlation) and test of significance of the parameters are affected by sample size. R-square is an indicator of the proportion of variance of the dependent variable explained by the independent variables in the model. Tests of statistical significance provide the basis for determining the importance of the variables. Pedhazur (1982) notes that the larger the ratio of the number of the independent variables to the size of the sample, the greater the overestimation of the R-square and the test of significance. Second, Lisrel estimates of the chi-square test of the overall fit of the

model and goodness-of-fit indices are greatly affected by sample size. It has been argued that with a relatively large sample size, a hypothesis about the fit of a model may be rejected even when the model fits the data properly. Conversely, when sample size is small, a hypothesis of the fit a model may not be rejected even if it does not fit the data properly (Pedhazur, 1982; Joreskog and Sorbon, 1981).

While it is generally recognized that the size of a sample has direct implication on the interpretation of chi-square test of the overall fit of the model, R-square, and significance test, there are no firm guidelines on what the ratio of the number of cases to number of parameters should be. Bentler and Chou (1987) suggest that the ratio of sample size to number of free parameters should be 5:1. These authors argued that this ratio should be used "when there are many indicators of latent variables and the associated factor loadings are large." This ratio is considered to be appropriate for this study because of the relatively high numbers of latent variables used and the factor loadings of the indicators.

The number of free parameters estimated was 150 (Model 2). Using the ratio 5:1 as a criteria, the ideal sample size for this study would be 750. The conclusion here is that the sample size (N=415) used in this study is inadequate and as such the R-square and the chi-square test

of the overall fit of the model should be interpreted with caution. A stringent one-tail test ($p<.05$) was used to determine the level of significance of the variables because the direction of the relationship between each of the independent variable and job satisfaction was hypothesized in the causal model.

Confirmatory Factor Analysis

This section presents the results of the confirmatory factor analysis which was used to examine the relations between the manifest indicators and their latent construct and to estimate the reliability of the indicators. The results presented in this section is based on Model 2. As can be seen in Appendix C, the factor loadings and reliability estimates of the multiple indicators of the construct are consistent with the results of the exploratory factor analysis presented in Appendix A. The average factor loadings on the constructs was .85. The LISREL estimates of the reliabilities of the manifest indicators exceeded .80 in all cases, with the exception of the manifest indicator of internal labor market which had a reliability estimate of .61.

The degree of fit between the measurement model and the sample data yielded a chi-square of 1687.85 with 960 degrees of freedom (probability level=0.000). The goodness of fit

index and the adjusted goodness of fit index were 0.87 and 0.84, respectively. As discussed earlier, the chi-square test is highly sensitive to sample size and violations of the assumption of multivariate normality. Because the chi-square test is sensitive to sample size, delta statistics was used to assess the fit of the model. Delta statistics are less sensitive to sample size and has been proven to be equally as powerful as the chi-square test (Bentler and Bonet, 1982). Delta statistics are obtained by substracting the chi-square of the model (i.e factor structure specified) from the chi-square of a null model (i.e factor structure unspecified) and dividing the obtained value by the chi-square of the null model. Values of delta statistics which are above .90 are interpreted as good fit of the model to the data. The value of the delta statistic obtained in this analysis was .86. This is interpreted as evidence of a fairly good fit of the model to the data.

CHAPTER IV

RESULTS OF MULTIVARIATE ANALYSIS

This chapter presents the results of the multivariate statistical procedures used to estimate the causal model. The presentation begins with comparative analysis of the subgroup differences on job satisfaction. The second section presents the results of the LISREL estimates of the zero-order correlations between job satisfaction measured at Time 2 and the independent variables. The third section presents the results of the LISREL maximum likelihood procedures used to estimate four different structural equation models. Fourth, the results of the exploratory investigation of the effect of pay on job satisfaction are presented. Finally, the results of the LISREL procedures used to estimate the explanatory power of the correlates and the unique effect of pay are presented.

Comparative Analysis of Subgroup Differences

This section presents the results of the comparative analysis of subgroup difference on the mean of job satisfaction. Seven subgroups of the VAMC employees were investigated: occupation (i.e. administrators,

professionals, service workers, clerical, and craft), sex (i.e. male, female), age (i.e. younger and older employees), marital status (i.e. married, single), employment status (i.e. full-time, part-time), length of employment (i.e. less than three years, between three and six years, more than six years), education (i.e. less than twelve years, between twelve and sixteen years, more than sixteen years).

The grand mean of job satisfaction was 20.60. This compared well with the score of 20.96 obtained at this site few years ago (Brooke, 1986), and with the score of 21.82 obtained by Price and Mueller (1986b) from a study conducted with a relatively large sample which comprised of five acute-care hospitals located in the mountain region.

There was no statistical significant ($F = 0.71$, $df = 4$ and 405) or substantial difference in the mean of job satisfaction among the various occupational groups. The administrators had the highest score of 21.08. Professional employees had the second highest score of 20.87. The scores were 20.35, 20.01, and 19.75 for service workers, clerical employees, and craft workers, respectively. These results suggest that the degree to job satisfaction is basically the same across all the occupational groups. This finding is not consistent with the findings reported in a previous study (Gruenberg, 1980) which suggested that higher-level employees are generally more satisfied than lower-level employees.

Men had a slightly higher score of 21.01 than women who had a score of 20.38. However, the difference men and women was not statistically significant (F=1.70, df=1 and 408). This result suggests that women have the same level of job satisfaction as men. This finding is consistent with the reports of previous researchers (Golembiewski, 1977; Weaver, 1977) who have demonstrated that females have about the same degree of job satisfaction as their male counterparts.

The analysis involving younger (less than 40 years old) and older (more than 40 years old) employees showed that older employees had a statistically significant (F=12.68, df=1 and 408) higher score than younger employees. Older employees had a score of 21.44, while younger employees scored 20.38. The results suggest that older employees are more satisfied with their job than younger employees. This finding is consistent with results obtained in previous studies (Glenn, Taylor, and Weaver, 1977; King et al., 1982; Janson and Martin, 1982).

The analysis involving married and single (F=0.46, df=1 and 408), and full-time and part-time (F=0.79, df=1 and 408) employees did not provide evidence of any statistically significant or substantial differences among these subgroups. The scores were 20.72 for married employees, 20.39 for single employees, 20.53 for full-time employees, and 21.16 for part-time employees. The suggestion here is

that married, single, full-time, and part-time employees have the same levels of job satisfaction.

The last sets of analysis involves employees who have less than three year seniority, between three and six years of seniority, more than six year of seniority, less than twelve year of education, between twelve and seventeen years of education, and more than sixteen years of education. The scores for these subgroups were 20.58, 20.39, 20.82, 20.44, 20.42, and 20.66, respectively. The employees who had more than six years of seniority and more than sixteen years of education had a slightly higher score than others. However, the difference was not statistically significant. The F-statistic for the educational subgroup was .06 with degrees of freedom of 2 and 407; for the seniority subgroup the F-statistic was 0.33 with degrees of freedom of 2 and 407. These results suggest that the level of job satisfaction is the same across all levels of seniority and education. These findings are not consistent with the results obtained by previous researchers who have shown that length of employment is positively related to job satisfaction (Katz , 1978; Mottaz, 1985) and that well educated employees are generally more satisfied with their job than employees with low levels of education (King et al. 1982).

Lisrel Estimates of Zero-Order Correlation

The zero-order correlations of job satisfaction with the independent variables are presented in Table 11. It should be noted that zero-order correlations are not the unique effects of the variables. Rather, they are the total relationship of each independent variable to job satisfaction without controlling for the effects of other variables in the model. Unique effects of the variables will be examined in Models 1, 2, 3, and 4. As can be seen on Table 11, job satisfaction is negatively related to opportunity (-0.090), routinization (-0.550), role ambiguity (-0.347), role conflict (-0.284) and negative affectivity (-0.282); job satisfaction is positively related to autonomy (0.448), work group cohesion (0.278), work involvement (0.365), involvement (0.365), distributive justice (0.536), internal labor market (0.169), supervisory support (0.391), task significance (0.363), positive affectivity (0.381), and initial job satisfaction (0.798). The directions of the relationships are consistent with theory. The correlation between role overload and job satisfaction was not statistically significant.

Five conclusions can be drawn from these findings. First, the results suggest that employees of an organization are more likely to have a high degree of job satisfaction if

they have few alternative jobs in the environment for which they are qualified, perform less routine work, receive adequate information about what is expected of them, receive compatible job requests from their superiors, have the freedom to make work-related decisions, belong to a friendly work group, believe that work is an important part of life, are fairly rewarded, have the opportunity to move up in the organization, and consider their jobs to be significant to the successful operation of the organization. Second, job satisfaction is negatively related to negative affectivity and positively to positive affectivity. These results provide support for the theory which states that some individuals are predisposed to react negatively or positively to their job situation regardless of the objective conditions that exist on the job. Third, the zero-order correlation between Time 2 job satisfaction and initial job satisfaction was the largest. It ,therefore, suggests that the best predictor of future job satisfaction is initial job satisfaction and that job satisfaction is a fairly stable trait. Fourth, since the observed relationship between job satisfaction and other variables are consistent with theory, it provides strong evidence of the construct validity of the variables in the causal model. Finally, role overload had no significant correlation with job satisfaction. This could be interpreted that role

overload is not an important variable for the sample studied. The evidence regarding the linear relationship between role overload and job satisfaction is not conclusive. Although preliminary analysis of the data used in this study provided evidence of linearity between role overload and job satisfaction, the linearity check conducted by Price and Mueller (1986b) suggests that the relationship between role overload and job satisfaction may be nonlinear. A nonlinear relationship would suggest that role overload is only likely to have an impact on job satisfaction if the work load is excessive.

LISREL Estimates of the Structural Equation Model

This section presents the results of the LISREL computer program used to estimate four different structural equation models. The first model examines the multivariate relationship between job satisfaction and the independent variables. The second model examines the multivariate relationship between job satisfaction and the independent variables after controlling for positive and negative affectivity. The third model examines the multivariate relationship between job satisfaction and the independent variables after controlling for initial job satisfaction. Finally, a model which examines the multivariate relationship between job satisfaction and the independent

Table 11

LISREL Estimates (Standardized) for Causal Model

Variables	Zero-order Correlations Satisfaction Time 2	LISREL Maximum Likelihood Estimates Model 1	Model 2	Model 3	Model 4
Opportunity	-0.090*	-0.043	-0.076*	-0.001	-0.012
Routinization	-0.550*	-0.357*	-0.350*	-0.137*	-0.125*
Autonomy	0.448*	0.091	0.096	0.037	0.056
Role Ambiguity	-0.347*	-0.025	-0.088	-0.022	-0.008
Role Conflict	-0.284*	-0.042	-0.020	-0.016	-0.032
Role Overload	-0.040	-0.105*	-0.052	-0.017	-0.004
Work Group cohesion	0.278*	-0.036	-0.052	0.003	0.003
Work Involvement	0.365*	0.138*	0.100*	0.026	0.052
Distributive justice	0.536*	0.259*	0.277*	0.133*	0.127*
Internal Labor market	0.169*	-0.052	-0.031	0.037	0.017
Supervisory support	0.391*	0.070	0.016	0.039	0.002
Task significance	0.363*	0.099*	0.034	0.032	0.017
Positive affectivity	0.381*		0.159*		0.217*
Negative affectivity	-0.282*		-0.153*		-0.183*
Initial job satisfaction	0.798*			0.662*	0.665*
R-square		0.50	0.55	0.67	0.69

Notes: *p< 0.05, one-tail test.

variables after controlling jointly for positive and negative affectivity, and initial job satisfaction was

analyzed. The rationales for analyzing these models are presented in the analysis section. It should be noted that the correlation of residuals between job satisfaction measured at Time 1 and Time 2 was included in the structural equation Model 1 and Model 2 so as to prevent overestimation of effects which may arise due to model misspecification and respondents attempt to provide consistent response over time. The computer programs used to estimate the four structural models are presented in Appendix D.

The focus of this research is to examine the multivariate relationships between the independent variables and job satisfaction after controlling for positive and negative afffectivity. The standardized beta coefficients obtained from the analysis of this model (Model 2) is used as the benchmark to examine the relative importance of the independent variables. The significant determinants of job satisfaction, as estimated in Model 2, in the order of their importance, were: routinization, distributive justice, positive affectivity, negative affectivity, work involvement, and opportunity. These results are consistent with the hypothesis regarding these determinants. The net effects of role ambiguity, role conflict, role overload, work group cohesion, internal labor market, supervisory support, and task significance were not statistically significant. A total of 55 percent of the variance in job

satisfaction was explained by this structural equation model.

Routinization had the largest net effect (-0.350) on job satisfaction. After controlling for initial job satisfaction, routinization was still strongly related to job satisfaction. This finding supports the hypothesis of the model that employees who consider their jobs to be "highly repetitive," and "unchallenging" are more likely to be dissatisfied with their jobs. Routinization is a technology variable which many researchers have examined its effects on job satisfaction (Price and Mueller, 1981, 1986; Blegen and Mueller, 1987; Sorensen, 1985; Brooke, 1986). The finding of this analysis regarding the effect of routinization on job satisfaction is consistent with the results obtained in the above cited empirical studies.

Distributive justice (0.277) was the second most important variable in the model. After controlling for initial job satisfaction (Model 3 and 4), distributive justice was still strongly related to job satisfaction. This finding provides strong support for the hypothesis of the model that employees who perceive that they are fairly rewarded for the work done are more likely to be satisfied with their jobs than those who do not. Distributive justice is a characteristic of the sanction system used by organizations to reward or punish employees based on their

performance. The effect of distributive justice on job satisfaction has been widely studied (Price and Mueller, 1981, 1986; Williams and Hazer, 1986; Vroom, 1964; Curry et al., 1985; Curry et al., 1986; Price and Bluedorn, 1982; Bluedorn, 1982; Martin, 1979). The finding of this analysis is consistent with the results obtained in the above cited empirical studies. The standardized beta coefficient for distributive justice dropped to 0.133 and 0.127 in Models 3 and 4, respectively. These reductions may be attributed to the colinearity between distributive justice and initial job satisfaction.

The third and fourth most important variables were positive affectivity (0.159) and negative affectivity (-0.153). The direction of the relationships are consistent with the hypothesis of the model. These results suggest that employees who are predisposed to experience self dissatisfaction across time and situation are more likely to be less satisfied with their jobs. Conversely, employees who are predisposed to be enthusiastic across time and situation are more likely to be highly satisfied with their jobs. Positive and negative affectivity are personality variables which previous studies have shown to be related to job satisfaction (Brief et al., 1988; Watson et al., 1987). The findings of this study are consistent with the results reported by Staw and his colleagues (Staw and Ross, 1985;

Staw, Bell, 1986) who have demonstrated that an employee's future job satisfaction can be predicted by knowing his/her disposition to react positively or negatively in any given situation.

The fifth most important variable was work involvement (0.100). The direction of the relationship is consistent with the hypothesis of the model. This result shows that employees who consider work to be an important part of life are more likely to be satisfied with their jobs than those who do not. Work involvement is a personality variable which previous studies have shown to be positively associated with job satisfaction (Brooke, 1986; Mottaz, 1981, 1985, 1988; Price and Mueller, 1986b). The finding of this study regarding its effect on job satisfaction is consistent with the results obtained in these studies. It should be noted that work involvement had no significant effect on job satisfaction after controlling for initial job satisfaction (Models 3 and 4). This result is not unexpected because of the colinearity between work involvement and initial job satisfaction.

Opportunity (-0.076) was the least important variable in the model. Before controlling for dispositional affectivity, opportunity had no significant effect on job satisfaction. However, after controlling for positive and negative affectivity, it became significant. This result is

not entirely surprising. By partialling out the effects of positive and negative affectivity, the observed relationship is presumed to be the "true" net effect of opportunity. Opportunity is an environmental variable. Its effect on job satisfaction has not been widely studied as much as its link to turnover has been investigated. The obtained result is consistent with the hypothesis that employees who believe that there are many alternative jobs available for which they are qualified are more likely to be dissatisfied with their present jobs. This result is consistent with the results obtained in previous empirical studies (Price and Mueller 1981, 1986; Blegen and Mueller, 1987).

Autonomy, role ambiguity, role conflict, role overload, work group cohesion, internal labor market, supervisory support, and task significance had no significant effect on job satisfaction. These results suggest that having freedom to make work-related decisions, knowing what is expected, being free from conflicting demands, having a reasonable work load, working in a friendly work group, having opportunity for upward mobility, having a helpful supervisor, or knowing how individual job is related to organizational output has no net impact on the degree to which employee's like their job. These findings are not consistent with the results obtained in previous empirical studies that have shown that autonomy, role ambiguity, role

conflict, role overload, work group cohesion, internal labor market, supervisory support, and task significance are important determinants of job satisfaction.

Exploratory Investigation of the Effect of Pay

As discussed earlier in the causal model chapter, pay was deleted from the model, but retained in the study for further exploratory investigation of its effect on job satisfaction. This investigation was necesiated by recent empirical evidence which revealed that there is a negative causal relationship between pay and job satisfaction (Price and Mueller, 1986b; Brooke, 1986; Sorenson, 1985). This finding is inconsistent with the literature. The position taken in this investigation is that the inconsistency is largely a measurement problem, and not a theoretical problem. The investigation conducted involves using objective measure (income information obtained from personnel records) and subjective measure (information provided by employee), and an examination of the effect of pay using each measure. The correlation between objective pay and subjective pay was .69. The mean for objective pay was $26,599. For subjective pay, the mean was $28,507.

Multiple regression analysis was used to examine the effect of pay on job satisfaction using the two measures of pay. An examination of the zero-order correlation revealed

that ojective pay (0.241) and subjective pay (0.209) are positively correlated with job satisfaction. The multivariate analysis of the effect of pay, however, revealed that pay is not an important determinant of job satisfaction, regardless of how pay is measured. A total of 41 percent of the variance of job satisfaction was explained by this model. The result of this investigation did not confirm or refute the findings of Price and Mueller (1986b). They found that pay has a negative impact on job satisfaction, whereas this investigation showed that pay is not a determinant of job satisfaction. Economists have argued that pay is an important determinant of employees' affective reaction to their job situation. Evidence of this study suggests that pay may not be an important determinant once other variables (i.e. autonomy, internal labor market, opportunity) which are correlated with pay are controlled for. What is needed at this point is another investigation that would repeat this study and also examine the extent to which employees satisfaction with pay is causally related to their job satisfaction. It is possible that actual pay is not as important as individual psychological reaction to his pay.

LISREL Estimates of the Effects of Correlates and Pay

As discussed earlier in the causal model chapter, correlates (i.e. sex, marital status, age, education, occupation, and tenure) were not included in the causal model because many empirical studies have shown that after theoretical variables have been taken into account correlates contributes very little to the explanatory power of the causal model. Also, pay was deleted from the model because the findings abtained in a few recent studies have raised questions about the relationship between pay and job satisfaction.

The discussion presented in this section focused on the results of the LISREL maximum likelihood procedures used to estimate the explanatory power of the correlates after taking the theoretical variables into consideration and the unique effect of pay on satisfaction. Three conclusions can be drawn from the results of these analyses presented in Table 12. First, age and occupation was shown to be positively related to job satisfaction. This suggests that older employees and employees in the higher occupational categories (i.e professionals and administrators) are generally more satisfied with their jobs. Second, pay had no significant effect on job satisfaction. This result is consistent with the findings reported earlier. Third, after

adding the correlates to the structural equation models there were no significant increases in the *R*-squares. These findings are consistent with the results obtained in previous studies.

Table 12

LISREL Estimates of the
Effects of the Correlates

Variables	Zero-order Correlations Satisfaction Time 2	LISREL Maximum Likelihood Estimates Model 1	Model 2	Model 3	Model 4
Opportunity	-0.128*	-0.037	-0.102*	-0.012	-0.012
Routinization	-0.451*	-0.393*	-0.378*	-0.109*	-0.124*
Autonomy	0.382*	0.092	0.097	0.068	0.074
Role Ambiguity	-0.331*	-0.002	-0.070	-0.029	-0.046
Role Conflict	-0.249*	-0.056	-0.020	-0.020	-0.043
Role Overload	-0.115*	-0.094	-0.045	-0.035	-0.023
Work Group cohesion	0.286*	0.001	-0.010	0.024	0.025
Work Involvement	0.358*	0.112*	0.117*	0.024	0.036
Distributive justice	0.467*	0.243*	0.253*	0.149*	0.155*
Internal Labor market	0.099*	-0.040	-0.018	-0.039	0.026
Supervisory support	0.373*	0.064	0.006	-0.039	0.046
Task significance	0.288*	0.085*	0.018	-0.055	0.072
Positive affectivity	0.281*		0.134*		0.213*
Negative affectivity	-0.249*		-0.196*		-0.094*
Initial job satisfaction	0.702*			0.715*	0.686*
Pay	0.178*	-0.057	-0.063	-0.033	-0.046
Age	0.223*	0.126*	0.075	0.023	0.014
Sex	-0.069	0.014	0.013	-0.007	-0.006
Education	-0.009	0.003	0.008	0.030	0.023
Occupation	0.080*	0.055	0.001	0.028	0.059
Tenure	0.049	0.045	0.040	0.005	0.006
Marital Status	-0.010	0.029	0.052	0.076*	0.078*
R-square		0.51	0.56	0.73	0.74

Notes: *p< 0.05, one-tail test.

CHAPTER V

SUMMARY AND CONCLUSION

This chapter consists of four sections. The first section presents the summary of the main findings of the research. The second section highlights the performance and notable features of the causal model. Third, the practical implications of the main findings and recommendations for management are presented. Finally, recommendations for furure research are presented.

Summary of Main Findings

There were four main findings. The first main finding was that routinization, distributive justice, positive affectivity, negative affectivity, work involvement, and opportunity had significant impacts on job satisfaction. Two conclusions can be drawn from these results: (1) these results suggest that employees' degree of job satisfaction may be controlled by manipulating the structure of work and by linking rewards and punishments to performance, and (2) it provided strong empirical evidence that, in addition to organizational variables, personality and environmental variables are important components of the factors influencing employee's job satisfaction.

The second main finding was that none of the role stressors (i.e. role ambiguity, role conflict, role overload) had a significant impact on job satisfaction after controlling for positive and negative affectivity. This finding validates the argument presented by Brief et al. 1988 which states that the relatlionship between self-report measures of role stress and job satisfaction may be eliminated once negative affectivity is controlled.

The third main finding concerns the relationship between positive and negative affectivity and job satisfaction. The results revealed that positive and negative affectivity had significant impact on job satisfaction. These findings validate previous empirical reports which showed that positive and negative affectivity are causally related to overall job satisfaction (Staw and Ross, 1985; Staw, Bell, and Clausen, 1986). Another important point to be noted here relates to the discriminant validity of dispositional affectivity and job satisfaction. Contrary to the implied assumption that negative affectivity and self-report measure of job dissatisfaction may be the same construct (Watson and Clark 1984), the results of this study clearly demonstrates that positive affectivity, negative affectivity, and job satisfaction are three distinct constructs. In the light of the growing research interest focused on controlling for dispositional affectivity, these results are particularly useful.

The fourth and final main finding pertained to the assumption of additivity. Tests for interaction involving sex, age, and occupation revealed no evidence that model of job satisfaction operate differently for females or male, for different age groups, or for different occupational categories. While these findings do not discount the possibility of potential differences which may exist between these subgroups, they provide statistical support for the generalizability of the model to the population sampled. A second set of interaction test was conducted to examine the possibility for interaction between social support (supervisory support, work group cohesion, and family/spouse support) and role stress (role ambiguity, role conflict, and role overload). No evidence was found to support the interaction of these variables. These findings support the assumption of additivity hypothesized.

Performance of the Causal Model

While a subtantial amount of research effort has been devoted to the study of job satisfaction, very few studies have integrated previous empirical findings and estimated a comprehensive model of job satisfaction. Locke (1969, 1976) notes that most studies of job satisfaction are trivial, repetitive, and inconclusive. The causal model estimated in this dissertation represents a significant improvement over most studies. Five areas of improvement are noted.

The first and most important feature of the model pertains to the amount of variance explained. The model (i.e model 2) accounted for fifty-five percent of the variance in job satisfaction. This figure is significantly higher than the thirty-nine percent variance accounted for by the Price and Mueller model. The high R-square is partially attributed to the fact that LISREL was used to estimate the model. The fifty-five percent variance in job satisfaction explained by this model is even much larger than what has been obtained in previous studies. A recent quantitative review of the job satisfaction literature conducted by Stone (1986) revealed that researchers have been able to explain only about twenty-five percent of the variance in job satisfaction. This was attributed to the limitation of the current popular instruments often used by researchers to investigate the job characteristics-job satisfaction relationship. The instruments identified include: The Job Diagnostic Survey (JDS) of Hackman and Lawler (1971), The Job Characteristics Inventory (JCI) of Sims, Szilagyi, and Keller (1976), and the Requisite Task Attributes and Perceived Task Index of Turner and Lawrence (1965). Stone and Zaccaro (1988) have demonstrated that empirically derived measures of job characteristics can be used to explain more of the variance in job satisfaction than measures based on a priori formulations. The outcome

of this study validated this point. Many of the measures used to assess the constructs in the model were empirically derived in previous studies.

The second most important feature of this study is the statistical procedure (LISREL) used to estimate the path coefficients of the variables in the model. Multiple regression is the most common statistical procedure used to investigate the factors influencing job satisfaction. Even though multiple regression is a powerful procedure, it is based on highly restrictive assumptions. For example, multiple regression analysis is based on the assumption that variables are measured without errors. Intuitively, it is conceivable that this assumption is liable to be erroneous especially when the variables assessed are unobservable. LISREL is a more powerful statistical procedure and is based on less restrictive assumptions. It does not, for example, assumes that variables are measured without error. Rather, LISREL takes measurement error into account by adjusting the path coefficients for measurement unreliability.

The inclusion of positive and negative affectivity as control variables in the model is the third major feature of this study. While it has been demonstrated that dispositional affectivity is a two-factor construct (i.e. positive and negative affectivity), previous studies have failed to consider its positive dimension. Both dimensions were measured and controlled for in this study.

The fourth feature of this study is the longitudinal approach taken. Researchers have generally relied on cross-sectional data to examine the correlation between selected job characteristics and correlates, and job satisfaction. Locke (1976) recommends longitudinal approach because it provides the basis on which statement about causation can be made.

Finally, the methodological strategy used in this study to control for possible confounding effect of historical events has rarely been used. The follow-up questionnaire contained items designed to identify respondents who have experienced changes in their work situation during the three-months interval of the administration of the surveys. The fourteen respondents who indicated that they have either been promoted, received pay raises, worked under a different supervisor, worked in a different unit, or tranferred from a full-time to part-time position or vice versa were removed from the sample. Researchers have generally ignored the potential effects of historical events on the validity of the results. The approach used in this study is by no means the best strategy. However, it does represents a systematic way of addressing the problem of the confounding effect of historical events.

Recommendations for Management

This section presents the ramifications of the main findings discussed from a management perspective. This research was not designed as a "fact-finding" study. Rather, the objective was to test a causal model of the relative effect of a set of variables on job satisfaction. For that reason, the effects of individual and environmental variables that cannot be manipulated by management were examined. Due to the fact that this is not a "fact-finding" study, the recommendations presented in this section should be regarded as suggestions on what hospitals can do to increase the level of job satisfaction among employees. The following two recommendations are suggested by the findings of this study.

(1) Hospitals should explore avenues to make employees' tasks less repetitive and more interesting. This recommendation is based on the finding that routinization is a strong determinant of job satisfaction. After controlling for initial job satisfaction, routinization remained the most important determinant of job satisfaction. The evidence of this research confirms those of other studies that lack of variety on the job can have a negative impact on the degree to which employees like their jobs.

Hospitals can make tasks less repetitive and more interesting by implementing quality of work life program. The quality of work life is affected by many factors: autonomy, supervision, working condition, promotional opportunity, and communication. But it is, as suggested in this study, the nature of the job that most intimately concerns the employee. The three most common types of quality of work life program used in the business industry are: job rotation, job enlargement, and job enrichment. Job rotation refers to the system whereby employees are allowed to move from job to job. Jobs themselves are not actually changed, only the employees are rotated. Job enlargement involves expanding the number of related tasks in the job assigned to the employee. Job enrichment involves giving employees more responsibility. The end results of these programs are fundamentally the same. It should be noted that this study does not provide evidence to suggest that the implementation of the job enrichment aspects of the quality of work life program would have an impact on employees' job satisfaction.

In terms of specific recommendations for management of the hospital used as the research site for this study, the job rotation aspects of the quality of work life program might be implemented. The analysis of this study showed that service workers (i.e. food service workers,

housekeepers, nursing aides, cooks) had the highest score of 10.45 on the routinization scale. Clerical employees (i.e. typists, secretaries, clerks, telephone operators, computer operators, file clerks, library attendents) had the second highest score of 10.33. Craft workers (i.e. electricians, air condition repairmen, plumbers, painters) had the third highest score of 9.88. Administrators and professional employees had a low score of 6.73 and 7.50, respectively. What these figures translate to is that service workers, clerical, and craft workers reported that their jobs are boring and that their skills, knowledge, and experience are not being utilized.

The job rotation aspect of the quality of work life program can be implemented in these lower job categories without any major barrier such as the licensure requirement. Job rotation program would be beneficial to the employee and the hospital in three ways: (1) rotation breaks repetitivenes by allowing employees to use their skills and abilities in different work settings, (2) the hospital benefits because job rotation allows employees to become competent in several jobs rather than only one, and (3) knowing how to perform a variety of jobs may improve an employee's confidence and makes the employee more efficient and valuable to the hospital.

(2) Hospitals should link reward and punishment to performance. Specifically, hospital management should ensure that decisions regarding hiring, promotion, or demotion are based strictly on performance, that such policy is practised at all levels of administration. and that the basis for decisions are communicated to the employees whenever possible. This recommendation is based on the finding that distributive justice is an important determinant of job satisfaction. After controlling for initial job satisfaction, distributive justice remained a strong determinant. This finding was corroborated by employees response to an open-ended question about what they would like to change to make VA Medical Center to better place to work. Distributive justice was the second most cited.

The analysis of this study did not reveal statistical differences among the various occupational groups on the distributive justice scale. Professional employees had the highest score of 11.83 on the distributive justice scale. Administrators had the second highest score of 11.46. The next sets of scores were 11.33, 11.29, and 10.29 for clerical employees, service workers, and crafts workers, respectively. What these results suggest is that professional employees believe that they are being rewarded fairly for their effort. Though crafts workers had a

slightly low score, the same conclusion can be drawn for all the occupational groups.

Previous empirical studies suggested that employees' job satisfaction would be high if they have freedom to make work-related decisions (i.e. autonomy), know what is expected of them (i.e. role ambiguity), receive no conflicting demands from their superiors (i.e. role conflict), have reasonable work load (i.e. role overload), have opportunity for upward mobility (i.e internal labor market), and know how their work is related to the overall organizational work process (i.e. task significance). However, these variables were not found to be significant in this study. The two recommendations presented above focused on the variables found to be important and that can be modified by the hospital.

Recommendations For Future Research

Though the causal model estimated in this study represents a significant improvement over many previous studies, it still has some limitations. Using the strengths and observed limitations of this model as a frame of reference, several theoretical and methodological recommendations are advanced for future research.

Theoretical Recommendations

Four variables should be modified and one added. Autonomy, work group cohesion, internal labor market, and supervisory support should be modified. Autonomy, as conceptualized in this study, refers to the degree to which employees have the freedom to act independently. The focus here is on the power employees exercise over how the work is done. It is possible for an employee to have the power to decide how the work should be done, but have no control over the resources needed to successfully complete the work. Future investigation of autonomy should consider two dimensions: (1) extent to which an employee can perform his job without interference of others, and (2) the extent to which an employee has control over the resources needed to complete the job.

The focus of work group cohesion, as presently conceptualized, is on the extent to which employees have close friends in their immediate work unit. This conceptualization failed to draw a distinction between how an employee perceive the closeness in his work group and how strongly the employee identifies with the group. The emphasis of this study is on the former. It is possible for an employee to have close friends in his immediate work unit and yet have a weak ties with members of the group. Future research, when examining the effect of work group cohesion, should draw a distinction between strong and weak ties.

The concept of internal labor market should be refined. The focus of internal labor market, as conceptualized in this study, is on the extent to which "upward mobility" is possible within an organization. This conceptualization ignores other types of mobility. For example, in an organizational or profession (e.g. nursing) where upward mobility is limited, lateral mobility may be desirable. In other words, in the absence of the opportunity for upward mobility, employees may attach a great importance to the freedom of being able to transfer to other units or departments without loss of pay or status. It is, therefore, recommended for future research to examine both types of mobilities.

The concept of supervisory support refers to the extent to which supervisors are helpful to their subordinates in job-related matters. The literature on leadership suggests that leadership behavior is a two-dimensional construct: consideration and the initiation structure. These concepts were first studied by researchers at the Ohio State University (Fleishman and Harris, 1962). The consideration dimension concerns supervisor's human relations ability to demonstrate trust, respect, and concern about the welfare of his subordinates (Michael and Spector, 1982). The initiation dimension refers to supervisors' ability to organize and establish procedures for achieving goals

(Fleishman and Harris, 1962). The concept of supervisory support, as conceptualized in this study, focused on the consideration dimension. What is being recommended here for future research is to examine both dimensions.

Upward communication should be added to the causal model in future research. Though the empirical evidence supporting the inclusion of this variable is not substantial, it is highly plausible that employees would value the opportunity to communicate their ideas and concerns to their superiors without fear of reprisal. The importance of this variable was suggested by respondents' response to an open-ended question about what they would like to change in the organization to make it a better place to work. In addition to citing pay, distributive justice, work load, parking space, benefits, work condition, and promotional opportunity, most of the respondents cited communication. The inclusion of upward communication could improve the causal model and its explanatory power.

Methodological Recommendations

Four methodological recommendations are advanced for future research. The first is the time factor. Approximately a three-month interval was allowed between the data collection of the independent variables and the dependent variable. This may account for why the net

effects of some variables were not statistically significant. In other words, three months may not have been adequate time to allow for changes to occur. Unfortunately, there are no guidelines in the literature on how much time interval should be allowed. Future research can address this question by measuring job satisfaction at four consecutive three-month intervals and evaluate the effects of the independent variables at each time period and the changes in the explained variance across the time periods.

Second, the hypotheses regarding the effects of role ambiguity, role conflict, and role overload was not supported. According to the suggestion made by Brief et al.(1988), when negative affectivity is controlled self-report measures of role stressors may not provide support for the theory which states that role stressors are negatively associated with job satisfaction. Objective measures of these variables should be used in future research. The development and implementation of objective measures of these variables may be time-consuming, costly, and difficult to execute. At this stage of job satisfaction research, however, this is the next logical step.

Third, the organization studied is a Veterans Medical Administration Center located in the Midwest. This is one of the limitations of this study for the simple reason that the findings obtained may be largely "sample-specific."

That is, the findings may not be generalizable to other non-VAMC institutions or VAMCs located in other regions. It is, therefore, recommended that the causal model be tested at a different site and the findings of this study be used as a base for comparison.

The fourth and final methodological recommendation pertains to the measurements of task significance and job satisfaction. Seven items were used to measure task significance, but only four items factored together. A better measure should be used in future research. Improvement in the measure of this variable could increase its theoretical significance and the explained variance of the causal model.

A subjective measure of job satisfaction is often used by researchers who are investigating the relationships between job characteristics and job satisfaction. Questions have been asked about the appropriateness of asking job incumbents to provide information on both job characteristics and job satisfaction (O'Reilly et al. 1980). What is being argued is that prior levels of job satisfaction can influence employee's perceptions of and therefore measurements of job characteristics. At this stage of job satisfaction research, it would be beneficial if other forms of measurements are investigated. The subjective measure used in this study is the most convenient

and inexpensive to implement. However, it may not be the most reliable. The two types of measures to be considered in the future include: (1) Using objective measure which may involve direct observation of employee attitude towards his fellow workers, supervisor, and the job, and (2) asking someone (e.g. supervisor, coworker) other than the person being studied to rate how satisfied is the employee with his job.

APPENDIX A

BASELINE: SCORING, DISTRIBUTIONS, AND FACTOR LOADINGS

This appendix presents the response scores and distributions for the measurements items used to assess the theoretical and control variables, and the correlates. The factor loadings of the items for each construct are also presented.

Table 13

Time 1 Job Satisfaction:Scoring and Distributions

The Items

Job Satisfaction

Listed below are some statements about job satisfaction. How much do you agree with each of these statements? (Check one for each statement.)

A. I find real enjoyment in my job.

Response	Score	Frequency	Percent
Strongly Agree	5	76	18.3
Agree	4	199	48.0
Neither Agree Nor Disagree	3	87	21.0
Disagree	2	44	10.6
Strongly Disagree	1	9	2.2
Missing		0	0.0
		415	100.0

B. I like my job better than the average person does.

Response	Score	Frequency	Percent
Strongly Agree	5	68	16.4
Agree	4	180	43.4
Neither Agree Nor Disagree	3	112	27.0
Disagree	2	43	10.4
Strongly Disagree	1	11	2.7
Missing		1	0.2
		415	100.0

Table 13 (cont.)

The Items

C. I am seldom bored with my job.

Response	Score	Frequency	Percent
Strongly Agree	5	74	17.8
Agree	4	208	50.1
Neither Agree Nor Disagree	3	59	14.2
Disagree	2	61	14.7
Strongly Disagree	1	13	3.1
Missing		0	0.0
		415	100.0

D. I would not consider taking another kind of job.

Response	Score	Frequency	Percent
Strongly Agree	5	33	8.0
Agree	4	64	15.4
Neither Agree Nor Disagree	3	102	24.6
Disagree	2	162	39.0
Strongly Disagree	1	54	13.0
Missing		0	0.0
		415	100.0

E. Most days I am enthusiastic about my job.

Response	Score	Frequency	Percent
Strongly Agree	5	56	13.5
Agree	4	221	53.3
Neither Agree Nor Disagree	3	83	20.0
Disagree	2	42	10.1
Strongly Disagree	1	13	3.1
Missing		0	0.0
		415	100.0

Table 13 (cont.)

The Items			
F. I feel fairly well satisfied with my job.			
Response	Score	Frequency	Percent
Strongly Agree	5	54	13.0
Agree	4	231	55.7
Neither Agree Nor Disagree	3	64	15.4
Disagree	2	49	11.8
Strongly Disagree	1	17	4.1
Missing		0	0.0
		415	100.0

Table 14

Factor Analysis for Initial
Job Satisfaction Items

		Factor Loadings	
		Initial Job Satisfaction	
Item	Label	Loadings	Communality
A.	Real enjoyment	.8963	.8034
B.	Like my job	.7827	.6126
C.	Seldom bored	.7521	.5657
D.	Not consider another job	.4969	.2469
E.	Enthuasiatic about job	.8158	.6655
F.	Fairly well satisfied	.8491	.7210

Notes: 1. Cronbach's alpha (unstandardized) was .90.
2. The sum of items A-F was used in the multiple regression analysis.
3. The three manifest indicators of job satisfaction consisted of the mean of items A and D, B and E, and C and F.

Table 15

Opportunity Items: Scoring and Distributions

The Items

Opportunity

The local job market is the geographical area in which you can work without changing your residence.

A. How easy would it be for you to find a job with another employer in the local job market that is as good as the one you now have?

Response	Score	Frequency	Percent
Very easy	5	32	7.7
Quite easy	4	66	15.9
Somewhat easy	3	119	28.7
Quite difficult	2	140	33.7
Very difficult	1	57	13.7
Missing		1	0.2
		415	100.0

B. How easy would it be for you to find a job with another employer in the local job market that is better than the one you now have?

Response	Score	Frequency	Percent
Not easy at all	1	120	28.9
Not very easy	2	146	35.2
Somewhat easy	3	99	23.9
Quite easy	4	41	9.9
Very easy	5	8	1.9
Missing		1	0.2
		415	100.0

Table 15 (cont.)

The Items

C. How easy would it be for you to find a job with another employer outside the local job market that is as good as the one you now have?

Response	Score	Frequency	Percent
Very easy	5	75	18.1
Quite easy	4	76	18.3
Somewhat easy	3	125	30.1
Not very easy	2	107	25.8
Not easy at all	1	31	7.5
Missing		1	0.2
		415	100.0

D. How easy would it be for you to find a job with employer outside the local job market that is better than the one you now have?

Response	Score	Frequency	Percent
Not easy at all	1	55	13.3
Not very easy	2	132	31.8
Somewhat easy	3	105	25.3
Quite easy	4	72	17.3
Very easy	5	50	12.1
Missing		1	0.2
		415	100.0

Table 16

Factor Analysis for Opportunity

Factor Loadings			
	Opportunity		
Item	Label	Loadings	Communality
A.	Good job in local market	.6419	.4120
B.	Better job in local market	.6315	.3988
C.	Good job outside local market	.9119	.8316
D.	Better job outside local market	.8773	.7697

Notes: 1. Cronbach's alpha (unstandardized) was .87.
2. The sum of items A-D was used in the multiple regression analysis.
3. The three manifest indicators of opportunity consisted of item A, D, and the mean of items B and C.

Table 17

Routinization Items:
Scoring and Distribution

The Items

Routinization

A. To what extent does your job require that you keep learning new things?

Response	Score	Frequency	Percent
Must always learn new things	1	0	0.0
Quite often	2	204	49.2
Sometimes	3	122	29.4
Rarely	4	64	15.4
Never required	5	25	6.0
Missing		0	0.0
		415	100.0

B. To what extent does your job require high level of skills?

Response	Score	Frequency	Percent
A very high level of skill is required	1	3	0.7
Quite a high level	2	34	8.2
Somewhat high	3	89	21.4
Rather low level	4	149	35.9
Very low level of skill is required	5	140	33.7
Missing		0	0.0
		415	100.0

Table 17 (cont.)

The Items			
C. How creative does your job require that you be?			
Response	Score	Frequency	Percent
Required to be very creative	1	13	3.1
Quite creative	2	88	21.2
Somewhat creative	3	147	35.4
Very little	4	109	26.3
No creativity required	5	58	14.0
Missing		0	0.0
		415	100.0
D. How much does your job let you use your skills and abilities?			
Response	Score	Frequency	Percent
My job makes very good use of my skills and abilities	1	2	0.5
Good use	2	31	7.5
Some use	3	67	16.1
Very little use	4	150	36.1
My job makes no use of my skills and abilities	5	165	39.8
Missing		0	0.0
		415	100.0

Table 18

Factor Analysis for Routinization Items

Factor Loadings		
Routinization		
Item Label	Loadings	Communality
A. Keep learning new things	.7561	.5717
B. Require high level of skill	.7476	.5589
C. Job require creativity	.5347	.2859
D. Use skills and abilities	.5044	.2544

Notes: 1. Cronbach's alpha (unstansardized) was .8134.
2. The sum of items A-D was used for the multiple regression analysis.
3. The three manifest indicators of routinization consisted of the means of items A and D, and items B and C.

Table 19

Autonomy Items: Scoring and distribution

The Items

Autonomy

A. How much freedom do you have to do what you want on your job?

Response	Score	Frequency	Percent
Very much	5	72	17.3
Much	4	127	30.6
A moderate amount	3	132	31.8
Little	2	57	13.7
Very little	1	27	6.5
Missing		0	0.0
		415	100.0

B. How much are you left on your own to do your work?

Response	Score	Frequency	Percent
Very much	5	249	60.0
Much	4	114	27.5
A moderate amount	3	40	9.6
Little	2	8	1.9
Very little	1	4	1.0
Missing		0	0.0
		415	100.0

Table 19 (cont.)

The Items			
C. To what extent are you able to act independently of your supervisor in performing your job function?			
Response	Score	Frequency	Percent
Very great extent	5	141	34.0
Great extent	4	179	43.1
Some extent	3	70	16.9
Little	2	9	2.2
Very little	1	16	3.9
Missing		0	0.0
		415	100.0
D. To what extent does your job allow you the opportunity for independent thought and action?			
Response	Score	Frequency	Percent
Very great extent	5	121	29.2
Great extent	4	153	36.9
Some extent	3	105	25.3
Little	2	23	5.5
Very little	1	13	3.1
Missing		0	0.0
		415	100.0

Table 20

Factor Analysis for Autonomy Items

Factor Loadings		
Autonomy		
Item Label	Loadings	Communality
A. Freedom to do what you want	.7194	.5175
B. Left on your own to work	.5418	.2933
C. Act independently of supervisor	.6845	.4685
D. Opportunity for independent action	.7225	.5220

Notes: 1. Cronbach's alpha (unstandardized) was .81.
2. The sum of items A-D was used for the multiple regression analysis.
3. The three manifest indicators of autonomy consisted of item A, C, and the mean of items B and D.

Table 21

Role Ambiquity Items:
Scoring and Distribution

The Items

Role Ambiquity

Please indicate your agreement or disagreement with each of the following statements. (Check one for each statement.)

A. I know what my responsibilities are.

Response	Score	Frequency	Percent
Strongly Agree	1	241	58.1
Agree	2	158	38.1
Neither Agree Nor Disagree	3	8	1.9
Disagree	4	7	1.7
Strongly Disagree	5	1	0.2
Missing		0	0.0
		415	100.0

B. I know exactly what is expected of me.

Response	Score	Frequency	Percent
Strongly Agree	1	166	40.0
Agree	2	176	42.4
Neither Agree Nor Disagree	3	38	9.2
Disagree	4	30	7.2
Strongly Disagree	5	5	1.2
Missing		0	0.0
		415	100.0

Table 21 (cont.)

The Items

C. I am told how well I am doing my job.

Response	Score	Frequency	Percent
Strongly Agree	1	75	18.1
Agree	2	150	36.1
Neither Agree Nor Disagree	3	83	20.0
Disagree	4	63	15.2
Strongly Disagree	5	44	10.6
Missing		0	0.0
		415	100.0

D. I receive a clear explanation of what has to be done.

Response	Score	Frequency	Percent
Strongly Agree	1	69	16.6
Agree	2	182	43.9
Neither Agree Nor Disagree	3	97	23.4
Disagree	4	46	11.1
Strongly Disagree	5	21	5.1
Missing		0	0.0
		415	100.0

Table 22

Factor Analysis for Role Ambiguity Items

Factor Loadings			
Role Ambiguity			
Item	Label	Loadings	Communality
A.	Know my responsibilities	.7457	.5561
B.	Know what is expected of me	.8089	.6543
C.	Told how well I am doing	.2302	.0530
D.	Receive clear explanation	.4345	.1888

Notes: 1. Cronbach's alpha (unstandardized) was .77.
2. The sum of items A, B, and D was used in the multiple regression analysis.
3. Item C was removed from further consideration.
4. Items A, B, and D were used as the manifest indicators of role ambiguity.

Table 23

Role Conflict Items:
Scoring and Distribution

The Items

Role Conflict

Please indicate your agreement or disagreement with each of the following statements. (Check one for each statement.)

A. I receive incompatible requests from two or more people.

Response	Score	Frequency	Percent
Strongly Agree	5	24	5.8
Agree	4	108	26.0
Neither Agree Nor Disagree	3	116	28.0
Disagree	2	128	30.8
Strongly Disagree	1	39	9.4
Missing		0	0.0
		415	100.0

B. I do things that are apt to be accepted by one person and not accepted by others.

Response	Score	Frequency	Percent
Strongly Agree	5	47	11.3
Agree	4	152	36.6
Neither Agree Nor Disagree	3	84	20.2
Disagree	2	93	22.4
Strongly Disagree	1	39	9.4
Missing		0	0.0
		415	100.0

Table 23 (cont.)

The Items			
C. I have to do things that should be done differently.			
Response	Score	Frequency	Percent
Strongly Agree	5	47	11.3
Agree	4	113	27.2
Neither Agree Nor Disagree	3	111	26.7
Disagree	2	105	25.3
Strongly Disagree	1	39	9.4
Missing		0	0.0
		415	100.0
D. I perform work that suits my values.			
Response	Score	Frequency	Percent
Strongly Agree	1	90	21.7
Agree	2	192	46.3
Neither Agree Nor Disagree	3	80	19.3
Disagree	4	46	11.1
Strongly Disagree	5	7	1.7
Missing		0	0.0
		415	100.0

Table 24

Factor Analysis for Role Conflict Items

Items	Label	Factor Loadings	Communality
		Loadings	
A.	Receive incompatible requests	.6520	.4251
B.	Accepted by one person and not other	.9113	.8307
C.	Do things differently	.6628	.4406
D.	Perform task that suits my values	.0961	.0092

Notes: 1. Cronbach's alpha (unstandardized) was .84.
2. The sum of items A, B, and C was used in the multiple regression analysis.
3. Item D was removed from further consideration.
4. Items A, B, and C were used as the manifest indicators of role conflict.

Table 25

Role Overload Items:
Scoring and Distribution

The Items

Role Overload

Please indicate your agreement or disagreement with each of the following statements. (Check one for each statement.)

A. I have enough time to complete my work.

Response	Score	Frequency	Percent
Strongly Agree	1	54	13.0
Agree	2	166	40.0
Neither Agree Nor Disagree	3	54	13.0
Disagree	4	99	23.9
Strongly Disagree	5	42	10.1
Missing		0	0.0
		415	100.0

B. I receive assignments that are within my training and capability.

Response	Score	Frequency	Percent
Strongly Agree	1	132	31.8
Agree	2	236	56.9
Neither Agree Nor Disagree	3	23	5.3
Disagree	4	20	4.8
Strongly Disagree	5	4	1.0
Missing		0	0.0
		415	100.0

Table 25 (cont.)

The Items

C. I receive assignments without adequate resources and materials to execute them.

Response	Score	Frequency	Percent
Strongly Agree	5	36	8.7
Agree	4	70	16.9
Neither Agree Nor Disagree	3	89	21.4
Disagree	2	184	44.3
Strongly Disagree	1	36	8.7
Missing		0	0.0
		415	100.0

D. I have to work very hard just to keep up with my work.

Response	Score	Frequency	Percent
Strongly Agree	5	71	17.1
Agree	4	128	30.8
Neither Agree Nor Disagree	3	106	25.5
Disagree	2	86	20.7
Strongly Disagree	1	24	5.8
Missing		0	0.0
		415	100.0

E. I have too heavy a work load.

Response	Score	Frequency	Percent
Strongly Agree	5	52	12.5
Agree	4	75	18.1
Neither Agree Nor Disagree	3	123	29.6
Disagree	2	135	32.5
Strongly Disagree	1	30	7.2
Missing		0	0.0
		415	100.0

Table 26

Factor Analysis for Role Overload Items

Items	Label	Factor Loadings: Loadings	Factor Loadings: Communality
A.	Enough time to complete work	.6643	.4413
B.	Assignment within training	.1154	.0133
C.	Assignment without resources	.2573	.0662
D.	Work very hard to keep up	.7630	.5822
E.	Have too heavy a work load	.9380	.8798

Notes:
1. Cronbach's alpha (unstandardized) was .85.
2. The sum of items A ,D, and E was used in the multiple regression analysis.
3. Items B and C were removed from further consideration.
4. Items A, D and E were used as the manifest indicators of role overload

Table 27

Work Group Cohesion Items:
Scoring and Distribution

The Items

Work Group Cohesion

The next set of questions deals with people in your immediate work group, that is, the individuals with whom you have the most contact at work.

A. To what extent are individuals in your work group friendly?

Response	Score	Frequency	Percent
Very Friendly	5	147	35.4
Quite	4	160	38.6
Somewhat	3	89	21.4
Very little	2	11	2.7
Not friendly at all	1	7	1.7
Missing		1	0.2
		415	100.0

B. How often do you do things socially with individuals in your work group outside of work?

Response	Score	Frequency	Percent
Never	1	72	17.3
Not very often	2	170	41.0
From time to time	3	138	33.3
Quite often	4	29	7.0
Very often	5	5	1.2
Missing		1	0.2
		415	100.0

Table 27 (cont.)

The Items

C. To what extent are individuals in your work group helpful to you in getting your job done?

Response	Score	Frequency	Percent
Very helpful	5	99	23.9
Quite	4	143	34.5
Somewhat	3	127	30.6
Very little	2	32	7.7
Not helpful at all	1	13	3.1
Missing		1	0.2
		415	100.0

D. To what extent do you trust individuals in your work group?

Response	Score	Frequency	Percent
A great deal of trust	5	75	18.1
Quite a lot	4	174	41.9
Some	3	110	26.5
Very little	2	37	8.9
No trust at all	1	18	4.3
Missing		1	0.0
		415	100.0

E. How often do you discuss important personal problems with individuals in your work group?

Response	Score	Frequency	Percent
Very often	5	18	4.3
Quite often	4	44	10.6
From time to time	3	132	31.8
Not very often	2	157	37.8
Never	1	63	15.2
Missing		1	0.2
		415	100.0

Table 27 (cont.)

The Items

F. To what extent do individuals in your work group take an interest in you?

Response	Score	Frequency	Percent
Not interested at all	1	12	2.9
Very little	2	49	11.8
Somewhat	3	202	48.7
Quite	4	120	28.9
Very interested	5	31	7.5
Missing		1	0.2
		415	100.0

G. To what extent will individuals in your work group do favors for you at considerable cost to themselves?

Response	Score	Frequency	Percent
Will do almost no favor for me	1	72	17.3
Will do some	2	167	40.2
Will do moderate amount	3	95	22.9
Will do many	4	57	13.7
Will do almost any favor for me	5	21	5.1
Missing		0	0.0
		415	100.0

H. How much do you know about the individuals in your work group?

Response	Score	Frequency	Percent
Know a great deal about them	5	73	17.6
Quite a lot	4	120	28.9
A moderate amount	3	151	36.4
Some	2	60	14.5
Know almost nothing about them	1	10	2.4
Missing		0	0.0
		415	100.0

Table 28

Factor Analysis for Work Group Cohesion Items

Items	Label	Factor Loadings: Loadings	Factor Loadings: Communality
A.	Friendly work group	.7413	.5495
B.	Socialize outside of work	.4902	.2403
C.	Helpful in getting job done	.6977	.4868
D.	Trust individuals in work group	.7776	.6047
E.	Discuss personal problems	.5570	.3102
F.	Individual take interest in me	.7370	.5432
G.	Do favors at considerable cost	.6245	.3900
H.	Know about individuals in group	.4761	.2267

Notes:
1. Cronbach's alpha (unstandardized) was .84.
2. The sum of items A-H was used as work group cohesion scale in the multiple regression analysis.
3. The three manifest indicators of work group cohesion consisted of the means of items A and B, D and H, and C, E, F, and G.

Table 29

Work Involvement Items:
Scoring and Distribution

The Items

Work Involvement

Please indicate the extent of your agreement or disagreement with each of the following statements. (Check one for each statement.)

A. The most important things that happen in life involve work.

Response	Score	Frequency	Percent
Strongly Agree	5	5	1.2
Agree	4	51	12.3
Neither Agree Nor Disagree	3	79	19.0
Disagree	2	193	46.5
Strongly Disagree	1	87	21.0
Missing		0	0.0
		415	100.0

B. Work should be considered central to life.

Response	Score	Frequency	Percent
Strongly Agree	5	4	1.0
Agree	4	78	18.8
Neither Agree Nor Disagree	3	92	22.2
Disagree	2	164	39.5
Strongly Disagree	1	77	18.6
Missing		0	0.0
		415	100.0

Table 29 (cont.)

The Items

C. In my view, an individual's personal life goals should be work oriented.

Response	Score	Frequency	Percent
Strongly Agree	5	6	1.4
Agree	4	68	16.4
Neither Agree Nor Disagree	3	107	25.4
Disagree	2	167	40.2
Strongly Disagree	1	67	16.1
Missing		0	0.0
		415	100.0

D. Life is worth living only when people get absorbed in work.

Response	Score	Frequency	Percent
Strongly Agree	5	2	0.5
Agree	4	25	6.0
Neither Agree Nor Disagree	3	65	15.7
Disagree	2	185	44.6
Strongly Disagree	1	138	33.3
Missing		0	0.0
		415	100.0

Table 30

Factor Analysis for Work Involvement Items

Factor Loadings		
Work Involvement		
Item Label	Loadings	Communality
A. Life involve work	.7202	.5187
B. Work central to life	.8026	.6442
C. Goals should be work oriented	.7742	.5994
D. Get absorbed in work	.7612	.5794

Notes: 1. Cronbach's alpha (unstandardized) was .86.
2. The sum of items A-D was used as the indicators of work involvement in the multiple regression analysis.
3. The three manifest indicators of work involvement consisted of the mean of items A and B, and items C and D

Table 31

Distributive Justice Items:
Scoring and Distribution

The Items

Distributive Justice

Fairness in the following questions means the extent to which a person's contributions are related to the rewards received. Money and recognition are examples of rewards.

A. To what extent are you fairly rewarded considering the responsibilities that you have?

Response	Score	Frequency	Percent
To a very great extent	5	23	5.5
To a great extent	4	93	22.4
To some extent	3	169	40.7
Very little extent	2	88	21.2
Not at all	1	42	10.1
Missing		0	0.0
		415	100.0

B. To what extent are you fairly rewarded taking into account the amount of education and training that you have had?

Response	Score	Frequency	Percent
To a very great extent	5	22	5.3
To a great extent	4	90	21.7
To some extent	3	177	42.7
Very little extent	2	90	21.7
Not at all	1	36	8.7
Missing		0	0.0
		415	100.0

Table 31 (cont.)

The Items

C. To what extent are you fairly rewarded for the amount of effort that you put forth?

Response	Score	Frequency	Percent
To a very great extent	5	23	5.5
To a great extent	4	81	19.5
To some extent	3	157	37.8
Very little extent	2	113	27.2
Not at all	1	41	9.9
Missing		0	0.0
		415	100.0

D. To what extent are you fairly rewarded in view of the amount of experience that you have?

Response	Score	Frequency	Percent
To a very great extent	5	24	5.8
To a great extent	4	85	20.5
To some extent	3	165	39.8
Very little extent	2	98	23.6
Not at all	1	43	10.4
Missing		0	0.0
		415	100.0

Table 32

Factor Analysis for
Distributive Justice Items

Item	Label	Loading	Communality
	Factor Loadings		
	Distributive Justice		
A.	Fair considering responsibility	.8775	.7700
B.	Fair considering education	.8641	.7467
C.	Fair considering effort	.8503	.7230
D.	Fair considering experience	.8500	.7225

Notes: 1. Cronbach's alpha (unstandardized) was .95.
2. The sum of items A-D was used as the individual distributive justice score in the multiple regression analysis.
3. The three manifest indicators of distributive justice consisted of the mean of items A and D, and items B and C.

Table 33

Internal Labor Market Items:
Scoring and Distributions

The Items

Internal Labor Market

A. To what extent is the job you now have a stepping stone to another job?

Response	Score	Frequency	Percent
To a very great extent	5	29	7.0
To a great extent	4	75	18.1
To some extent	3	123	29.6
A little	2	89	21.4
Not at all	1	98	23.6
Missing		1	0.2
		415	100.0

B. How likely is it that the job you have now is a part of a regular series of positions by which people move to a higher level?

Response	Score	Frequency	Percent
Very likely	5	39	9.4
Quite likely	4	75	18.1
Somewhat likely	3	112	27.0
Barely likely	2	102	24.6
Not at all likely	1	86	20.7
Missing		1	0.2
		415	100.0

Table 33 (cont.)

The Items

C. How extensive is the practice of internal promotions where you work in the hospital?

Response	Score	Frequency	Percent
All promotions are from within	5	25	6.0
Mostly from within	4	142	34.2
Some from within	3	124	29.9
Few from within	2	85	20.5
No promotions from within	1	34	8.2
Missing		5	1.2
		415	100.0

D. Where you work in the hospital, how extensive is the practice of beginning at the bottom an working up?

Response	Score	Frequency	Percent
Everybody must start at bottom	5	29	7.0
Almost everyone must start at the bottom	4	89	21.4
Quite a few	3	97	23.4
Some	2	161	38.8
No one starts at the bottom	1	35	8.4
Missing		4	1.0
		415	100.0

Table 34

Factor Analysis for Internal Labor Market Items

Item Label	Factor Loadings: Internal Labor Market Loadings	Communality
A. Present job is a stepping stone	.7148	.5109
B. Move to a higher level	.9210	.8482
C. Practice of internal promotion	.3955	.1564
D. Begin at the bottom and work up	.1905	.0362

Notes:
1. Cronbach's alpha (unstandardized) was .72.
2. The sum of items A-C was used as individual internal labor market score in multiple regression analysis.
3. Item D was removed from further consideration.
4. Items A, B, and C were used as the manifest indicators of internal labor market.

Table 35

Supervisory support Items:
Scoring and Distributions

The Items

Supervisory Support

Please indicate how true each of the following statements is of your immediate supervisor.

A. My supervisor is competent in doing his/her job

Response	Score	Frequency	Percent
Very true	4	137	33.0
True	3	144	34.7
Somewhat true	2	107	25.8
Not at all true	1	27	6.5
Missing		0	0.0
		415	100.0

B. My supervisor is very concerned about the welfare of those under him/her.

Response	Score	Frequency	Percent
Very true	4	106	25.5
True	3	136	32.8
Somewhat true	2	116	28.0
Not at all true	1	57	13.7
Missing		0	0.0
		415	100.0

Table 35 (cont.)

The Items			
C. My supervisor praises good work.			
Response	Score	Frequency	Percent
Very true	4	80	19.3
True	3	117	28.2
Somewhat true	2	158	38.1
Not at all true	1	60	14.5
Missing		0	0.0
		415	100.0
D. My supervisor is helpful to me in getting my job done.			
Response	Score	Frequency	Percent
Very true	4	67	16.1
True	3	124	29.9
Somewhat true	2	156	37.6
Not at all true	1	68	16.4
Missing		0	0.0
		415	100.0
E. My supervisor is willing to listen to my work related problems.			
Response	Score	Frequency	Percent
Very true	4	111	26.7
True	3	152	36.6
Somewhat true	2	114	27.5
Not at all true	1	38	9.2
Missing		0	0.0
		415	100.0

Table 35 (cont.)

The Items

F. My supervisor can be relied on when things get tough at work.

Response	Score	Frequency	Percent
Very true	4	91	21.9
True	3	136	32.8
Somewhat true	2	114	27.5
Not at all true	1	74	17.8
Missing		0	0.0
		415	100.0

Table 36

Factor Analysis for
Supervisory support items

Factor Loadings		
Supervisory Support		
Item Label	Loadings	Communality
A. Supervisor is competent	.7643	.5842
B. Concerned about welfare	.8742	.7642
C. Supervisor praises good work	.7301	.5330
D. Helpful to get job done	.8152	.6645
E. Willing to listen to problems	.8725	.7613
F. Can be relied on	.8889	.7901

Notes: 1. Cronbach's alpha (unstandardized) was .94.
2. The sum of items A-F was used as individual supervisory support score in the multiple regression analysis.
3. The three manifest indicators of supervisory support consisted of the means of items A and B, items C and F, and items D and E.

Table 37

Task Significance Items:
Scoring and Distributions

The Items

Task Significance

Listed below are some statements about the contribution of your job to the overall organizational work process. Please inidicate the extent to which you agree or disagree with each statement. (Check one for each statement.)

A. My work is a significant contribution to the successful operation of the hospital.

Response	Score	Frequency	Percent
Strongly Agree	5	155	37.3
Agree	4	207	49.9
Neither Agree Nor Disagree	3	37	8.9
Disagree	2	13	3.1
Strongly Disagree	1	2	0.5
Missing		1	0.2
		415	100.0

B. Sometimes I am not sure I completely understand the purpose of what I am doing.

Response	Score	Frequency	Percent
Strongly Agree	1	7	1.7
Agree	2	36	8.7
Neither Agree Nor Disagree	3	40	9.6
Disagree	4	209	50.4
Strongly Disagree	5	122	29.4
Missing		1	0.2
		415	100.0

Table 37 (cont.)

The Items			
C. My work is really important and worthwhile.			
Response	Score	Frequency	Percent
Strongly Agree	5	152	36.6
Agree	4	204	49.2
Neither Agree Nor Disagree	3	48	11.6
Disagree	2	8	1.9
Strongly Disagree	1	2	0.5
Missing		1	0.2
		415	100.0
D. I often wonder what the importance of my job really is.			
Response	Score	Frequency	Percent
Strongly Agree	1	4	1.0
Agree	2	37	8.9
Neither Agree Nor Disagree	3	38	9.2
Disagree	4	199	48.0
Strongly Disagree	5	136	32.8
Missing		1	0.2
		415	100.0
E. I often feel that my work counts for very little around here.			
Response	Score	Frequency	Percent
Strongly Agree	1	18	4.3
Agree	2	58	14.0
Neither Agree Nor Disagree	3	44	10.6
Disagree	4	187	45.1
Strongly Disagree	5	107	25.8
Missing		1	0.2
		415	100.0

Table 37 (cont.)

The Items

F. I understand how my work role fits into the overall operation of this hospital.

Response	Score	Frequency	Percent
Strongly Agree	5	135	32.5
Agree	4	233	56.1
Neither Agree Nor Disagree	3	35	8.4
Disagree	2	8	1.9
Strongly Disagree	1	3	0.7
Missing		0	0.0
		415	100.0

G. I understand how my work fits in with the work of others here.

Response	Score	Frequency	Percent
Strongly Agree	5	126	30.4
Agree	4	243	58.6
Neither Agree Nor Disagree	3	33	8.0
Disagree	2	10	2.4
Strongly Disagree	1	2	0.5
Missing		1	0.2
		415	100.0

Table 38

Factor Analysis for Task Significance Items

Factor Loadings		
Task Significance		
Item Label	Loadings	Communality
A. Work contributes significantly	.5358	.2871
B. Not understand purpose of work	.0552	.0030
C. My work is important	.3995	.1596
D. Wonder about importance of work	.0414	.0017
E. My work count very little here	.0904	.0082
F. My work fit overall operation	.9480	.8987
G. My work fit the work of others	.8095	.6553

Notes:
1. Cronbach's alpha (unstandardized) was .85.
2. The sum of items A, C, F, and G was used as individual task significance score in the multiple regression analysis.
3. Items B, D, and E were removed from further consideration.
4. The three manifest indicators of task significance consisted of item A, G, and the mean of items C and F.

Table 39

Negative Affectivity Items:
Scoring and Distributions

The Items

Negative Affectivity

Listed below are series of statements a person might use to describe his/her attitudes, opinions, interest, and other characteristics. If a statement is true or largely true, put a "T" in the space next to the item. Or, if the statement is false or largely false, mark a "F" in the space.

A. I often find myself worrying about something.

Response	Score	Frequency	Percent
True	1	251	60.5
False	0	164	39.5
Missing		0	0.0
		415	100.0

B. My feelings are hurt rather easily.

Response	Score	Frequency	Percent
True	1	184	44.3
False	0	230	55.4
Missing		1	0.2
		415	100.0

C. Often I get irritated at little annoyances.

Response	Score	Frequency	Percent
True	1	187	45.1
False	0	227	54.7
Missing		1	0.2
		415	100.0

D. I suffer from nervousness.

Response	Score	Frequency	Percent
True	1	83	20.0
False	0	330	79.5
Missing		2	0.5
		415	100.0

E. My mood often goes up and down.

Response	Score	Frequency	Percent
True	1	193	46.5
False	0	222	53.5
Missing		0	0.0
		415	100.0

F. I sometimes feel "just miserable" for no good reason.

Response	Score	Frequency	Percent
True	1	113	27.2
False	0	302	72.8
Missing		0	0.0
		415	100.0

G. I am easily startled by things that happen unexpectedly.

Response	Score	Frequency	Percent
True	1	92	22.2
False	0	322	77.6
Missing		1	0.2
		415	100.0

Table 39 (cont.)

The Items

H. Minor setbacks sometimes irritate me too much.

Response	Score	Frequency	Percent
True	1	200	48.2
False	0	213	51.3
Missing		2	0.5
		415	100.0

I. I often lose sleep over my worries.

Response	Score	Frequency	Percent
True	1	80	19.3
False	0	334	80.5
Missing		1	0.2
		415	100.0

J. There are days when I'm "on edge" all of the time.

Response	Score	Frequency	Percent
True	1	159	38.3
False	0	256	61.7
Missing		0	0.0
		415	100.0

K. I am too sensitive for my own good.

Response	Score	Frequency	Percent
True	1	162	39.0
False	0	251	60.5
Missing		2	0.5
		415	100.0

Table 40

Factor Analysis for Negative Affectivity Items

Negative Affectivity		
	Factor Loadings	
Item Label	Loading	Communality
A. Worrying about something	.5040	.2540
B. Feelings get hurt easily	.1452	.0211
C. Irritated at little annoyances	.5600	.3136
D. I suffer from nervousness	.5264	.2771
E. Mood goes up and down	.5321	.2831
F. Feel miserable for no reason	.4728	.2235
G. Startled by things that happen	.3965	.1572
H. Minor setbacks irritates me	.6166	.3802
I. Often lose sleep over worries	.4018	.1614
J. On edge all the time	.6273	.3935
K. Too sensitive for my own good	.2470	.0610

Notes:
1. Cronbach's alpha (unstandardized) was .79.
2. The sum of items A, C, D, E, F, G, H, I, and J was used as the individual score on negative affectivity in the multiple regression analysis.
3. Items B and K were removed from further consideration.
4. The three manifest indicators of negative affectivity consisted of the means of items A, G, and J; C, E, and F; and D, H, and I.

Table 41

Positive Affectivity Item:
Scoring and Distributions

The Items

Positive Affectivity

A. It is easy for me to become enthusiastic about things I am doing.

Response	Score	Frequency	Percent
True	1	347	83.6
False	0	67	16.1
Missing		1	0.2
		415	100.0

B. I often feel happy and satisfied for no particular reason.

Response	Score	Frequency	Percent
True	1	274	66.0
False	0	139	33.5
Missing		2	0.5
		415	100.0

C. I live a very interesting life.

Response	Score	Frequency	Percent
True	1	297	71.6
False	0	116	28.0
Missing		2	0.5
		415	100.0

Table 41 (cont.)

The Items

D. Every day I do some things that are fun.

Response	Score	Frequency	Percent
True	1	275	66.3
False	0	139	33.5
Missing		1	0.2
		415	100.0

E. I usually find ways to liven up my day.

Response	Score	Frequency	Percent
True	1	332	80.0
False	0	83	20.0
Missing		0	0.0
		415	100.0

F. Most days I have moments of real fun.

Response	Score	Frequency	Percent
True	1	300	72.3
False	0	113	27.2
Missing		2	0.5
		415	100.0

G. I often feel sort of lucky for no special reason.

Response	Score	Frequency	Percent
True	1	248	59.8
False	0	167	40.2
Missing		0	0.0
		415	100.0

Table 41 (cont.)

The Items

H. Every day interesting things happen to me.

Response	Score	Frequency	Percent
True	1	219	52.8
False	0	194	46.7
Missing		2	0.5
		415	100.0

I. In my spare time I usually find something interesting to do.

Response	Score	Frequency	Percent
True	1	364	87.7
False	0	50	12.0
Missing		1	0.2
		415	100.0

J. For me, life is a great adventure.

Response	Score	Frequency	Percent
True	1	288	69.4
False	0	124	29.9
Missing		3	0.7
		415	100.0

K. I always seem to have something pleasant to look forward to.

Response	Score	Frequency	Percent
True	1	324	78.1
False	0	90	21.7
Missing		1	0.2
		415	100.0

Table 42

Factor Analysis for Positive Affectivity Items

Factor Loadings		
Positive Affectivity		
Item Label	Loadings	Communality
A. Easy to be enthusiastic	.4078	.1663
B. Happy and satisfied for no reason	.3971	.1577
C. Live very interesting life	.6246	.3901
D. I do things that are fun	.5765	.3324
E. Find ways to liven up my day	.5973	.3568
F. I have moments of fun.	.5968	.3562
G. Feel lucky for no special reason	.4568	.2087
H. Interesting things happens to me	.5616	.3154
I. Find something interesting to do	.4024	.1693
J. For me, life is a great adventure	.6709	.4501
K. Something pleasant to look for	.5365	.2878

Notes: 1. Cronbach's alpha (unstandardized) was .82.
2. The sum of items A-K was used as individual positive affectivity score in the multiple regression analysis.
3. The three manifest indicators of positive affectivity consisted of the means of items A, E, and H; items B, D, G, and J; and items C, F, I, and K.

Table 43

Demographic Variables:
Scoring and Distributions

The Items

Education

How many years of formal schooling have you completed? (Please circle one).

Response	Score	Frequency	Percent
Elementary 1 2 3 4 5 6	1	0	0.0
Junior High School 7 8 9	2	1	0.2
Senior High School 10 11 12	3	79	19.1
College 13 14 15 16	4	227	54.6
Advance degree 17 18 19 20	5	107	25.8
Missing		1	0.2
		415	100.0

Length of Employment (Tenure)

How much seniority do you have in this hospital?

Response	Score	Frequency	Percent
Less than 6 months	1	11	2.7
6 months - 1 year	2	11	2.7
1-2 years	3	65	15.7
3-5 years	4	77	18.6
6-10 years	5	75	18.1
11-15 years	6	74	17.8
More than 15 years	7	100	24.1
Missing		2	0.5
		415	100.0

Table 43 (cont.)

The Items

Age

How old were you on your last birthday?

Response	Score	Frequency	Percent
Less than 25 years old	1	17	4.1
Between 25-29 years	2	43	10.4
Between 30-39 years	3	152	36.6
Between 40-49 years	4	124	29.9
Between 50-59 years	5	64	15.4
60 year or older	6	13	3.1
Missing		2	0.5
		415	100.0

Marital Status

What is your marital Status?

Response	Score	Frequency	Percent
Married	1	269	64.8
Widowed	2	8	1.9
Divorced	3	62	14.9
Separated	4	6	1.4
Never been married	5	68	16.4
Missing		2	0.5
		415	100.0

Note: Data pertaining to pay, duty status (i.e part-time or full-time), sex, and occupation were obtained from personnel records.

APPENDIX B

TIME 11 : SCORING, DISTRIBUTIONS, AND FACTOR LOADINGS

This appendix presents the scores, distributions, and factor loadings of the questionnaire items used to collect data during the follow-up survey. This presentation begins with the survey measures designed to examine the changes that have taken place between the baseline and follow-up survey. As discussed earlier, individuals who reported to have experienced some changes in their job situation were eliminated from the study so as to control for extraneous factors that may confound the effects of the measured determinants on the dependent variable.

Table 44

Changes Items: Scoring and Distributions

The Items

Changes

Please read each question below and mark it to show whether it describes the changes that have taken place in your job since the initial survey was conducted in September 1988.

A. Are you still working in the same unit?

Response	Score	Frequency	Percent
Yes	1	427	99.5
No	0	2	0.5
		429	100.0

B. Are you still working under the same supervisor?

Response	Score	Frequency	Percent
Yes	1	425	99.1
No	0	4	0.9
		429	100.0

C. Is there any change in your annual income?

Response	Score	Frequency	Percent
Yes	1	12	2.8
No	0	417	97.2
		429	100.0

Table 44 (cont.)

The Items

D. If yes- What is the new income?

E. Have you changed jobs within the Medical center?

Response	Score	Frequency	Percent
Yes	1	0	0.0
No	0	429	100.0
		429	100.0

F. Have you been promoted?

Response	Score	Frequency	Percent
Yes	1	1	0.2
No	0	428	99.8
		429	100.0

G. Have you changed from being a part-time employee to full-time employee?

Response	Score	Frequency	Percent
Yes	1	0	0.0
No	0	429	100.0
		429	100.0

H. Have you changed from being a full-time employee to a part-time employee?

Response	Score	Frequency	Percent
Yes	1	0	0.0
No	0	429	100.0
		429	100.0

Table 45

Time II Job Satisfaction:
Scoring and Distributions

The Items

Job Satisfaction

Listed below are some statements about job satisfaction. How much do you agree with each of these statements? (Check one for each statement.)

A. I find real enjoyment in my job.

Response	Score	Frequency	Percent
Strongly Agree	5	56	13.5
Agree	4	201	48.4
Neither Agree Nor Disagree	3	103	24.8
Disagree	2	46	11.1
Strongly Disagree	1	9	2.2
Missing		0	0.0
		415	100.0

B. I like my job better than the average person does.

Response	Score	Frequency	Percent
Strongly Agree	5	58	14.0
Agree	4	182	43.9
Neither Agree Nor Disagree	3	131	31.6
Disagree	2	33	8.0
Strongly Disagree	1	11	2.7
Missing		0	0.0
		415	100.0

Table 45 (cont.)

The Items

C. I am seldom bored with my job.

Response	Score	Frequency	Percent
Strongly Agree	5	68	16.4
Agree	4	189	45.5
Neither Agree Nor Disagree	3	78	18.8
Disagree	2	66	15.9
Strongly Disagree	1	14	3.4
Missing		0	0.0
		415	100.0

D. I would not consider taking another kind of job.

Response	Score	Frequency	Percent
Strongly Agree	5	18	4.3
Agree	4	85	20.5
Neither Agree Nor Disagree	3	111	26.7
Disagree	2	155	37.3
Strongly Disagree	1	46	11.1
Missing		0	0.0
		415	100.0

E. Most days I am enthusiastic about my job.

Response	Score	Frequency	Percent
Strongly Agree	5	46	11.1
Agree	4	208	50.1
Neither Agree Nor Disagree	3	102	24.6
Disagree	2	48	11.6
Strongly Disagree	1	11	2.7
Missing		0	0.0
		415	100.0

Table 45 (cont.)

The Items

F. I feel fairly well satisfied with my job.

Response	Score	Frequency	Percent
Strongly Agree	5	45	10.8
Agree	4	233	56.1
Neither Agree Nor Disagree	3	80	19.3
Disagree	2	44	10.6
Strongly Disagree	1	13	3.1
Missing		0	0.0
		415	100.0

Table 46

Factor Analysis for Follow-up
job satisfaction items

Factor Loadings			
		Follow-up Job Satisfaction	
Item	Label	Loadings	Communality
A.	Real enjoyment	.8826	.7790
B.	Like my job	.8775	.7700
C.	Seldom bored	.6988	.4883
D.	Not consider another job	.4115	.1693
E.	Enthuasiatic about job	.8774	.7698
F.	Fairly well satisfied	.7545	.5692

Notes: 1. Cronbach's alpha (unstandardized) was .89.
2. The sum of items A-F was used in the multiple regression analysis.
3. The three manifest indicators of job satisfaction consisted of the mean of items A and D, B and C, and E and F.

Table 47

Response to open-ended question

Responses.

What types of changes would you like to see instituted at the VA Medical Center to make it a better place to work?

Responses	Frequency
Higher pay	59
Distributive justice	47
Hire more people to reduce workload	45
Parking space should be provided	35
More benefits	34
Improve communication	34
Supervisory support	28
Work conditions should be improved	25
Encourage employee participation in decision making	23
Provide promotional opportunity	22
Cafetaria hours should be extended	11

APPENDIX C

CONFIRMATORY FACTOR ANALYSIS

This appendix presents the results of the confirmatory factor analysis conducted on the items used to estimate the structural equation model. These results provided further conclusive evidence of the construct and discriminant validity of the measures used to assess the constructs in the model.

Table 48

Confirmatory Factor Analysis

LATENT CONSTRUCT LOADINGS															
VAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Manifest Indicators																Rel
FSAT1	.834															.91
FSAT2	.824															.91
FSAT3	.833															.91
OPPR1		.750														.87
OPPR2		.748														.86
OPPR3		.735														.86
AUTO1			.802													.90
AUTO2			.766													.88
AUTO3			.712													.84
ROUT1				.838												.92
ROUT2				.696												.83
ROUT3				.721												.85
ROLA1					.735											.86
ROLA2					.904											.95
ROLA3					.657											.81
ROLC1						.783										.89
ROLC2						.824										.91
ROLC3						.790										.89
ROLO1							.750									.87
ROLO2							.810									.90
ROLO3							.890									.94
WRKC1								.829								.91
WRKC2								.725								.85
WRKC3								.798								.89
LABO1									.772							.88
LABO2									.910							.95
LABO3									.370							.61
SUPS1										.852						.92
SUPS2										.921						.96
SUPS3										.855						.93

Table 48 (cont.)

LATENT CONSTRUCT LOADINGS

VAR 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16																
Manifest Indicator																Rel
TASK1									.934							.97
TASK2									.739							.86
TASK3									.692							.83
DIST1										.954						.98
DIST2										.886						.94
DIST3										.902						.95
WRKI1											.899					.95
WRKI2											.748					.87
WRKI3											.740					.86
PAFC1												.531				.73
PAFC2												.714				.85
PAFC3												.694				.83
NAFC1													.701			.84
NAFC2													.704			.84
NAFC3													.639			.80
BSAT1														.786		.89
BSAT2														.884		.94
BSAT3														.840		.92

chi-square (df=960, N=415) =1687.85 p<.000.
Delta Statistics= .86

APPENDIX D

COMPUTER PROGRAMS USED TO EXECUTE THE LISREL ANALYSES

This appendix presents the computer programs used to execute the LISREL analyses conducted in this study.

Table 49

Computer programs used to
execute the LISREL analyses

STRUCTURAL EQUATION MODEL 1

```
DA NI=39 NO=0 MA=CM
LA
*
'LFSAT1' 'LFSAT2' 'LFSAT3'
'LOPPOR' 'OPPOR1' 'OPPOR4' 'LAUTO' 'AUTO1' 'AUTO3' 'LROUT'
'ROUT2' 'ROUT3' 'ROLEA1' 'ROLEA2' 'ROLEA4' 'ROLEC1' 'ROLEC2'
'ROLEC3' 'ROLEO1' 'ROLEO4' 'ROLEO5' 'LWORKCO1' 'LWORKCO2'
'LWORKCO3' 'INLABOR1' 'INLABOR2' 'INLABOR3' 'LSUPSUP1'
'LSUPSUP2' 'LSUPSUP3' 'LTASKSIG' 'TASKSIG1' 'TASKSIG7'
'DISTJUS1' 'DISTJUS2' 'DISTJUS3' 'LWORKINV' 'WORKINV1'
'WORKINV3'/
RA
(39F1.0)
MO NX=36 NY=3 NK=12 NE=1 LY=FU,FI LX=FU,FI PH=SY,FR    C
   PS=SY,FR  GA=FU,FR  TD=DI,FR  TE=DI,FR
FR LY(2,1) LY(3,1) LX(2,1) LX(3,1) C
   LX(5,2) LX(6,2) LX(8,3) LX(9,3) LX(11,4) C
   LX(12,4) LX(14,5) LX(15,5) LX(17,6)  C
   LX(18,6) LX(20,7) LX(21,7) LX(23,8)  C
   LX(24,8) LX(26,9) LX(27,9) LX(29,10) C
   LX(30,10) LX(32,11) LX(33,11) LX(35,12)  C
   LX(36,12)  C
   GA(1,1) GA(1,2) GA(1,3) GA(1,4) GA(1,5) GA(1,6) GA(1,7)  C
   GA(1,8) GA(1,9) GA(1,10) GA(1,11) GA(1,12) C
ST 1.0 LY(1,1) LX(1,1) LX(4,2) LX(7,3) LX(10,4) LX(13,5)  C
       LX(16,6) LX(19,7) LX(22,8) LX(25,9) LX(28,10)  C
       LX(31,11) LX(34,12)
LK
*
'OPPORT' 'AUTON' 'ROUTI' 'ROLA' 'ROLC' 'ROLO' 'WORKC' 'LABOR'
'SUPER' 'TASK' 'DIST' 'WORKI'
LE
*
'FJOB'
OU TV MR FD SS TM=3630
```

Table 49 (cont.)

STRUCTURAL EQUATION MODEL 2

```
DA NI=45 NO=0 MA=CM
LA
*
'LFSAT1' 'LFSAT2' 'LFSAT3'
'LOPPOR' 'OPPOR1' 'OPPOR4' 'LAUTO' 'AUTO1' 'AUTO3' 'LROUT'
'ROUT2' 'ROUT3' 'ROLEA1' 'ROLEA2' 'ROLEA4' 'ROLEC1' 'ROLEC2'
'ROLEC3' 'ROLEO1' 'ROLEO4' 'ROLEO5' 'LWORKCO1' 'LWORKCO2'
'LWORKCO3' 'INLABOR1' 'INLABOR2' 'INLABOR3' 'LSUPSUP1'
'LSUPSUP2' 'LSUPSUP3' 'LTASKSIG' 'TASKSIG1' 'TASKSIG7'
'LDISTJUS' 'DISTJUS2' 'DISTJUS3' 'LWORKINV' 'WORKINV1'
'WORKINV3' 'LNAFECT1' 'LNAFECT2' 'LNAFECT3' 'LPAFECT1'
'LPAFECT2' 'LPAFECT3'/
RA
(45F1.0)
MO NX=42 NY=3 NK=14 NE=1 LY=FU,FI LX=FU,FI PH=SY,FR  C
   PS=SY,FR  GA=FU,FR  TD=DI,FR  TE=DI,FR
FR LY(2,1) LY(3,1) LX(2,1) LX(3,1)  C
   LX(5,2) LX(6,2) LX(8,3) LX(9,3) LX(11,4) C
   LX(12,4) LX(14,5) LX(15,5) LX(17,6)  C
   LX(18,6) LX(20,7) LX(21,7) LX(23,8)  C
   LX(24,8) LX(26,9) LX(27,9) LX(29,10) C
   LX(30,10) LX(32,11) LX(33,11) LX(35,12)  C
   LX(36,12) LX(38,13) LX(39,13) LX(41,14) C
   LX(42,14)  C
   GA(1,1) GA(1,2) GA(1,3) GA(1,4) GA(1,5) GA(1,6) GA(1,7) C
   GA(1,8) GA(1,9) GA(1,10) GA(1,11) GA(1,12) GA(1,13) C
   GA(1,14)
ST 1.0 LY(1,1) LX(1,1) LX(4,2) LX(7,3) LX(10,4) LX(13,5)  C
       LX(16,6) LX(19,7) LX(22,8) LX(25,9) LX(28,10)  C
       LX(31,11) LX(34,12) LX(37,13) LX(40,14)
LK
*
'OPPORT' 'AUTON' 'ROUTI' 'ROLA' 'ROLC' 'ROLO' 'WORKC' 'LABOR'
'SUPER' 'TASK' 'DIST' 'WORKI' 'NAFECT' 'PAFECT'
LE
*
'FJOB'
OU TV MR FD SS TM=3630
```

Table 49 (cont.)

STRUCTURAL EQUATION MODEL 3

```
DA NI=42 NO=0 MA=CM
LA
*
'LOPPOR' 'OPPOR1' 'OPPOR4' 'LAUTO' 'AUTO1' 'AUTO3' 'LROUT'
'ROUT2' 'ROUT3' 'ROLEA1' 'ROLEA2' 'ROLEA4' 'ROLEC1' 'ROLEC2'
'ROLEC3' 'ROLEO1' 'ROLEO4' 'ROLEO5' 'LWORKCO1' 'LWORKCO2'
'LWORKCO3' 'INLABOR1' 'INLABOR2' 'INLABOR3' 'LSUPSUP1'
'LSUPSUP2' 'LSUPSUP3' 'LTASKSIG' 'TASKSIG1' 'TASKSIG7'
'LDISTJUS' 'DISTJUS2' 'DISTJUS3' 'LWORKINV' 'WORKINV1'
'WORKINV3' 'LBSAT1' 'LBSAT2' 'LBSAT3' 'LFSAT1'
'LFSAT2' 'LFSAT3'/
RA
(42F1.0)
MO NY=46 NE=14 LY=FU,FI BE=FU,FI TE=SY,FI PS=SY,FR  C
FR LY(2,1) LY(3,1) LY(5,2) LY(6,2) C
   LY(8,3) LY(9,3) LY(11,4) LY(12,4) LY(14,5) LY(15,5) C
   LY(17,6) LY(18,6) LY(20,7) LY(21,7) LY(23,8) LY(24,8) C
   LY(26,9) LY(27,9) LY(29,10) LY(30,10) LY(32,11)  C
   LY(33,11) LY(35,12) LY(36,12) LY(38,13) LY(39,13)  C
   LY(41,14) LY(42,14) BE(14,1) BE(14,2) BE(14,3) C
   BE(14,4) BE(14,5) BE(14,6) BE(14,7) BE(14,8) C
   BE(14,9) BE(14,10) BE(14,11) BE(14,12) BE(14,13) C
   TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6)  C
   TE(7,7) TE(8,8) TE(9,9) TE(10,10) TE(11,11) TE(12,12) C
   TE(13,13) TE(14,14) TE(15,15) TE(16,16) TE(17,17) C
   TE(18,18) TE(19,19) TE(20,20) TE(21,21) TE(22,22)  C
   TE(23,23) TE(24,24) TE(25,25) TE(26,26) TE(27,27)  C
   TE(28,28) TE(29,29) TE(30,30) TE(31,31) TE(32,32) C
   TE(33,33) TE(34,34) TE(35,35) TE(36,36) TE(37,37) C
   TE(38,38) TE(39,39) TE(40,40) TE(41,41) TE(42,42) C
   TE(40,37) TE(41,38) TE(42,39)
ST 1.0 LY(1,1) LY(4,2) LY(7,3) LY(10,4) LY(13,5)  C
       LY(16,6) LY(19,7) LY(22,8) LY(25,9) LY(28,10)  C
       LY(31,11) LY(34,12) LY(37,13) LY(40,14)
FI PS(14,1) PS(14,2) PS(14,3) PS(14,4) PS(14,5) PS(14,6) C
   PS(14,7) PS(14,8) PS(14,9) PS(14,10) PS(14,11)  C
   PS(14,12) PS(14,13) TE(1,1)
LK
*
'OPPORT' 'AUTON' 'ROUTI' 'ROLA' 'ROLC' 'ROLO' 'WORKC'
'LABOR' 'SUPER' 'TASK' 'DIST' 'WORKI'  'BJOB'
LE
*
'FJOB'
OU TV SS TM=1830
```

Table 49 (cont.)

STRUCTURAL EQUATION MODEL 4

```
DA NI=48 NO=0 MA=CM
LA
'LOPPOR' 'OPPOR1' 'OPPOR4' 'LAUTO' 'AUTO1' 'AUTO3' 'LROUT'
'ROUT2' 'ROUT3' 'ROLEA1' 'ROLEA2' 'ROLEA4' 'ROLEC1' 'ROLEC2'
'ROLEC3' 'ROLEO1' 'ROLEO4' 'ROLEO5' 'LWORKCO1' 'LWORKCO2'
'LWORKCO3' 'INLABOR1' 'INLABOR2' 'INLABOR3' 'LSUPSUP1'
'LSUPSUP2' 'LSUPSUP3' 'LTASKSIG' 'TASKSIG1' 'TASKSIG7'
'LDISTJUS' 'DISTJUS2' 'DISTJUS3' 'LWORKINV' 'WORKINV1'
'WORKINV3' 'LNAFECT1' 'LNAFECT2' 'LNAFFECT3'
'LPAFECT1' 'LPAFECT2' 'LPAFECT3'
'LBSAT1' 'LBSAT2' 'LBSAT3' 'LFSAT1' 'LFSAT2' 'LFSAT3'/
RA
(48F1.0)
MO NY=48 NE=16 LY=FU,FI BE=FU,FI TE=SY,FI PS=SY,FR  C
FR LY(2,1) LY(3,1) LY(5,2) LY(6,2) C
   LY(8,3) LY(9,3) LY(11,4) LY(12,4) LY(16,5) LY(15,5) C
   LY(17,6) LY(18,6) LY(20,7) LY(21,7) LY(23,8) LY(24,8)  C
   LY(26,9) LY(27,9) LY(29.10) LY(30,10) LY(32,11)   C
   LY(33,11) LY(35,12) LY(36,12) LY(38,13) LY(39,13)  C
   LY(41,14) LY(42,14) LY(44,15) LY(45,15) LY(47,16) C
   LY(48,16) BE(16,1) BE(16,2) BE(16,3) BE(16,4) C
   BE(16,5) BE(16,6) BE(16,7) BE(16,8) BE(16,9) BE(16,10) C
   BE(16,11) BE(16,12) BE(16,13) BE(16,14) BE(16,15) C
   TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6) TE(7,7)   C
   TE(8,8) TE(9,9) TE(10,10) TE(11,11) TE(12,12) TE(13,13) C
   TE(14,14) TE(15,15) TE(16,16) TE(17,17) TE(18,18) C
   TE(19,19) TE(20,20) TE(21,21) TE(22,22) TE(23,23) C
   TE(24,24) TE(25,25) TE(26,26) TE(27,27) TE(28,28)  C
   TE(29,29) TE(30,30) TE(31,31) TE(32,32) TE(33,33)  C
   TE(34,34) TE(35,35) TE(36,36) TE(37,37) TE(38,38) C
   TE(39,39) TE(40,40) TE(41,41) TE(42,42) TE(43,43)  C
   TE(44,44) TE(45,45) TE(46,46) TE(47,47)   C
   TE(46,43) TE(47,44) TE(48,45)
ST 1.0 LY(1,1) LY(4,2) LY(7,3) LY(10,4) LY(13,5) LY(16,6) C
       LY(19,7) LY(22,8) LY(25,9) LY(28,10) LY(31,11) C
       LY(34,12) LY(37,13) LY(40,14) LY(43,15) LY(46,16)
FI PS(16,1) PS(16,2) PS(16,3) PS(16,4) PS(16,5) PS(16,6) C
   PS(16,7) PS(16,8) PS(16,9) PS(16,10) PS(16,11) C
   PS(16,12) PS(16,13) PS(16,14) PS(16,15) TE(1,1)
LK
'OPPORT' 'AUTON' 'ROUTI' 'ROLA' 'ROLC' 'ROLO' 'WORKC' 'LABOR'
'SUPER' 'TASK' 'DIST' 'WORKI'  'NAFECT' 'PAFECT' 'BJOB'
LE
'FJOB'
OU TV SS TM=1830
```

APPENDIX E

PUBLICITY FOR THE STUDY

This appendix presents the contents of the fact sheets and notices which were used to publicize the study. Also, the cover letters of the surveys are presented.

1. Fact Sheet Distributed to VAMC Employees.

Fact Sheet: A Study of Job Satisfaction

The objective of this research is to evaluate the effects of a series of environmental, organizational, and individual factors which are believed to influence job satisfaction. This research will ultimately provide insights on how to improve employees' attitudes towards their jobs. A revised and modified version of the Price and Mueller (1986) model will be used in this study.

The study is being conducted by Augustine Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration at the University of Iowa. The data collected in this study will be used for his doctoral dissertation. This research will be conducted under the supervision of Professor Samuel Levey (Head of the Graduate Program in Hospital and Health Administration) and Professor James Price (Department of Sociology/Graduate Program in Hospital and Health Administration).

Data collection will begin in the early Fall of 1988, at which time a brief questionnaire will be distributed to all Veteran Administration Medical Center employees (excluding residents, trainees, and temporary employees).

In about three months, thereafter, a briefer follow-up questionnaire will be distributed to all employees who participated in the initial survey to examine the possible changes that may have occurred. Postage-paid, self-addressed envelopes will be provided by Augustine Agho.

Participation is voluntary. All responses will be kept confidential. Questionnaires will be destroyed upon completion of the study.

The results of the study will be made available to those who are interested, upon its completion, in the Summer of 1989.

Notices published in the VAMC General Information Bulletin

Notice 1: August 6, 1988.

An independent study will be conducted by Mr. Augustine Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration at the University of Iowa. Mr. Agho will contact all service chiefs within the next few days for an appointment to discuss implementing this study within each service. All responses will be kept confidential and questionnaires will be destroyed upon completion of the study.

Notice 2: September 13, 1988.

Mr. Augustine O. Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration at the University of Iowa, will be distributing questionnaires to medical center employees this month. Although participation is voluntary, all employees are Encouraged to support this project. All data will be completely confidential. Mr. Agho is asking for your support in making this research a success by completing the questionnaire and returning it directly to him. Thank you for your assistance.

Notice 3: September 20, 1988.

Mr. Augustine O. Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration at the University of Iowa, has distributed 1,284 questionnaires within the medical center. As of this date only 200 questionnaires have been returned. Although participation is voluntary, you are encouraged to support this project. All data will be completely confidential. Please return your questionniare to Mr. Agho no later than 10/7/88. Let,s make this research project a success. Thank you for your assistance.

Notice 4: October 25, 1988.

Augustine Agho would like to thank all those who participated in phase one of his dissertation study. The overall response was outstanding. If anyone still wants to participate, you are encouraged to complete and return the questionnaire as soon as possible. Please call Augustine at 335-8278 if you need a copy of the questionnaire. A brief follow-up survey will be conducted in December.

Notice 5: December 6, 1988.

Mr. Augustine O. Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration at the University of Iowa, will distribute a follow-up questionnaire on 12/9/88 to those who participated in the initial survey. Mr. Agho is asking for your support in making this research project a success by completing the follow-up questionnaire and returning it to him directly. Thank you for your assistance.

Notice 6: December 27, 1988.

Mr. Augustine O. Agho, a doctoral candidate in the Graduate Program in Hospital and Health Administration has advised the medical center that over 200 follow-up questionnaires were due in his office by December 26, 1988. Let's help make this survey a success by completing and returning it to him. Thank you for your assistance.

Notice 7: January 24, 1988.

Mr. Augustine O. Agho wishes to thank all those who participated in the final phase of his dissertation research. The overall resonse rate was quite impressive. The success of his research would not have been possible without your support. The results of this study should be ready by the Summer of 1989. Please contact Mr. Agho at 335-8278 if you need a copy of the results. Again, thank you.

COVER LETTERS

Cover Letter Attached to the Initial Survey

This survey is part of a research project which seeks to gain a better undestanding of job satisfaction among people who are employed by hospitals. This research will ultimately provide insights on this determinants of job satisfaction.

This study is being conducted by Augustine Agho, who is pursuing a doctorate in Hospital and Health Administration at the University of Iowa. The research based on this questionnaire will be used in his doctoral dissertation.

Answers to all questions are voluntary and confidential. Your participation is sincerely requested, for there is no other way of finding out what you feel about your job. Information will be used for the purpose of statistical analysis only. At no time will the identity of any individual or work group be revealed. None of the completed questionnaires will ever be seen by anyone at the VA Medical Center. Questionnaires will be destroyed at the end of the study.

In order to study possible changes over time, a follow-up survey will be conducted, several months from now. The identification number at the top of the questionnaire will make it possible to do this follow-up. Identification numbers will be destroyed after the data have been analyzed.

Cover letter attached survey sent to those who have not returned their surveys by the close-out date

September 30, 1988

Dear Medical Center Employee:

This second questionnaire is being sent to the employees from whom a completed questionniare has not yet been received.

I will be grateful if you will kindly take some time from your busy schedule to complete the enclosed questionnaire and return it directly to me in the postage-paid, self-addresssed envelope.

Your participation in this research is sincerely requested. Your input should provide us with valuable information about how various aspects of hospital work environment affects the degree to which employees like their jobs.

Please ignore this notice if you have already returned your questionnaire.

Thank you for your participation in this study.

Sincerely,

Augustine O. Agho

Cover letter attached to the follow-up survey

December 9, 1988

Dear Medical Center Employee:

This follow-up survey is being sent to all those who participated in the initial study of job satisfaction which was conducted among employees of the Iowa City Medical Center. The purpose of this follow-up is to study possible changes in your feelings about your job situation which may have occurred since the initial survey was conducted. This follow-up questionnaire is much briefer than the first questionnaire and should take less than 10 minutes to complete.

Your participation in the first survey is highly appreciated. However, the overall success of this research will depend on your participation in this follow-up study. I will be grateful if you will take some time from your busy schedule to complete and return the questionnaire before December 26, 1988. The completed questionnaire should be returned to me at the University of Iowa in the enclosed postage-paid, self-addressed envelope.

Answers to all questions are voluntary and confidential. At no time will the identity of individuals or work groups be revealed. Information will be used for statistical analysis only. The identification number at the top of the page will be used to match responses from the two parts of the study. Questionnaires and identification numbers will be destroyed after the data have been analyzed.

I am, indeed, very grateful to you for the support you have given me and your continued assistance. The results of the study will be made available to participants upon request after its completion in the Summer of 1989. Please do not hesitate to contact me if you have any question about the study or need another questionnaire.

Again, thank you for your help. Have a wonderful holiday.

Sincerely,

Augustine O. Agho

Letter sent to remind participants to return follow-up survey

December 16, 1988

Dear Medical Center Employee:

Last week I mailed a follow-up survey to all those who participated in the initial survey of job satisfaction which I am conducting among employees of the Iowa City Veterans Administration Medical Center. If you have already returned the survey, thank you for your cooperation.

If you have not yet competed and returned the survey, please take time to do so at your earliest convenience. Responses received after December 26, 1988 cannot be analyzed. Your participation in this follow-up is very crucial for the overall success of this study.

Thank you for your participation.

Sincerely,

Augustine O. Agho

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