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The Effect of the Social Organization of Work on Voluntary Turnover of Hospital Nurses in the United States

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In light of current concerns over nursing shortages and productivity, turnover among hospital nurses in the United States has assumed renewed importance as a managerial issue. This study examines the thesis that the social organization of work in hospitals is an important determinant of voluntary turnover among registered nurses. This perspective differed from previous work in this area in that both turnover and its determinants are conceptualized at the organizational rather than individual level, thus opening the way for administrative intervention to reduce turnover. The conceptual model is tested using multiple regression techniques on a sample of 435 hospitals. Results suggest that both organizational characteristics and environmental conditions are important contributors to turnover.

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THE EFFECT OF THE SOCIAL ORGANIZATION OF WORK ON VOLUNTARY
TURNOVER OF HOSPITAL NURSES IN THE UNITED STATES*

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ABSTRACT

In light of current concerns over nursing shortages and productivity, turnover among hospital nurses in the United States has assumed renewed importance as a managerial issue. This study examines the thesis that the social organization of work in hospitals is an important determinant of voluntary turnover among registered nurses. This perspective differs from previous work in this area in that both turnover and its determinants are conceptualized at the organizational rather than individual level, thus opening the way for administrative intervention to reduce turnover. The conceptual model is tested using multiple regression techniques on a sample of 435 hospitals. Results suggest that both organizational characteristics and environmental conditions are important contributors to turnover.

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INTRODUCTION

Over the last quarter century, a shortage of nurses to staff the nation's hospitals in the United States has been a recurring concern ¹. In the 1960's, shortages were attributed to women leaving the labor force during the childbearing years; federal programs were designed to increase the supply of nurses through incentives to training institutions to increase enrollment and facilitate reentry of nurses into the labor force. Interest of social scientists was directed toward understanding the reasons nurses were leaving the labor force and conceptualized the problem from the perspective of the nurses' personal circumstances ^{2,3}.

During the late seventies, the shortages were attributed to the greater demand for nurse labor in certain specialties as a consequence of technological innovations. For example, innovations developed for use in the delivery of intensive care required more nurses. The advent of new types of services, such as neonatal intensive care nurseries, increased the demand for nurses even more. However, as societal changes increased career options for young women, fewer women were attracted to nursing resulting in a supply of new labor that could not keep up with increasing demand ¹. To meet acute nursing shortages, hospitals began competing with each other to attract nursing staff. As a reflection of these changes, social scientists' analyses of turnover increasingly considered work related issues associated with nursing turnover such as lack of professional autonomy and participation in hospital management, job stress and job dissatisfaction ^{4,5}.

High voluntary turnover rates at the beginning of this decade turned to

involuntary turnover with the advent of prospective payment in 1983. After some belt tightening to make hospitals more efficient, nurse shortages have reappeared. Hospital administrators have learned that survival under prospective payment requires cost containment and the costs associated with nursing turnover are considerable. Hospital costs associated with recruitment and hiring, personnel orientation and training have been shown to increase as a function of high turnover ³. Excessive turnover has also been associated with diminished productivity and nursing effectiveness ⁶.

Recently both the causes and solutions to voluntary turnover, have been conceptualized and analyzed by social scientists as problems of the hospital organization rather than as a behavioral response of the individual nurse employee to personal factors or conditions of work ^{7,8}. The present study extends the organizational analysis of turnover by considering the predictors of nurse turnover in a sample of 435 hospitals. The social organization of work and economic environmental factors are considered as alternative explanations of rates of nursing turnover in hospitals.

Background

Research on turnover has been extensive in both the health and industrial sectors. However, the estimated 1500 studies which have been reported in a number of reviews ^{9,10} have resulted in relatively few noteworthy conclusions and in even fewer effective interventions to reduce turnover.

Whether studies in the health sector ^{5,7} or in the industrial sector ^{11,12,13} turnover has been examined largely at the individual level using attitudinal predictors such as job satisfaction or characteristics of the individual employee (e.g., age, education and marital status). Turnover among nurses specifically has been partially explained by personal factors such as

marital status, short-job tenure and first job incumbency ^{7,13,14,15,16}. In a related vein, personal correlates of job satisfaction among nurses and women in general have included type of education, number of children, salary and fringe benefits received and degree of perceived internal control.

Employment conditions in hospitals have also been found to be related to voluntary turnover of individual nurses ^{2,17,18}. Self-reported organization or job related reasons for turnover include overtime work, rotating shifts, high workload, poor nurse leadership and poor relationships with physicians ^{15,17,19,20}. In Price and Mueller's ⁵ multivariate model of turnover, for example, a combination of personal and job related variables are predictive when job specific variables such as communication, pay and promotional opportunities are related to turnover through their effects on job satisfaction and intent to stay. Personal factors such as education and kinship responsibilities affect turnover only through their relation to intent to stay. The results of a recent study using a multistage model to estimate turnover are consistent. Job satisfaction is weakly and indirectly related to turnover through its association with "anticipated turnover;" personal factors do not have direct effects on turnover ⁷.

These studies demonstrate that characteristics of the work environment are predictors of job satisfaction. They demonstrate that turnover among individual nurses is mainly through "intent to stay" or "anticipated turnover". However data for many of these studies have been collected in small samples of hospitals, raising the issue of generalizability of study findings to hospitals in different regions of the country, with different forms of ownership, and of different size. The use of individual level data to study turnover may be more useful in individually tailored retention

strategies by administration. The feasibility of designing and implementing such strategies seems less likely given management orientation to groups or collectivities and the costs associated with developing individual-based interventions ²¹.

Turnover as an Organizational Attribute

The analysis of turnover as an organizational attribute has a number of advantages. Conceptualizing and measuring turnover at the organizational level shifts the explanation of turnover from individual to organizational attributes and thus opens the way for administrative intervention through changes in organization design and management policies. At the aggregate level, turnover is also a measure of organizational performance and is a reflection of its general health and effectiveness ^{22,23}. It is one aspect of human resources management that is commonly monitored for both intervention and for making personnel planning projections. Finally, the information necessary to study turnover at the organizational level of analysis does not require measurement of perceptions, thoughts, and feelings of people which may be less reliable than the recording of the organizational and environmental contexts in which employee decision making occurs ²².

This study explores the thesis that the social organization of work is a key determinant of aggregate rates of nursing turnover in United States hospitals. Social organization of work may be defined as the structural characteristics of a work setting that, by design or default, affect the conduct of work in an organization. As a general construct, the social organization of work builds on several distinct theoretical traditions including professionals in organizations, technology and task design, organizational demography and organizational culture ^{21,22,24,25,26,27}. Five

dimensions of this construct are considered in this investigation: 1) professionalization of the work force, 2) restrictiveness of work conditions, 3) professional organization design, 4) professional incentives and 5) organizational demography.

Professionalization of the Work Force

Professionalization of the nursing staff refers to the proportion of registered nurses in the work force. Typically, the nursing staffs of hospitals are composed of three key groups—registered nurses, licensed vocational (practical) nurses, and nursing assistants. Further, registered nurses are trained under a variety of educational approaches ranging from applied nurse training with a minimum of liberal arts and biological science to advanced training in both social and biological science. The relative mix of nurses with these educational backgrounds affects the prevailing ideology of nursing service. If the relative mix favors registered nurses and those with more education, it may also affect the nurses' commitment to the organization. The more professionalized nurses have less commitment to the employing institution. They are also more likely to view their career development independent of the employing organization²⁶.

Economic theories of human capital as explicated by Becker²⁸ argue that the workers who have received specific training (on-the-job, task-specific training) are a better long-term investment for the employing organization as they are more likely to stay with the organization. This, in part, results because their task-specific training restricts their ability to move easily to other employment situations. By contrast, workers who have received professional training and/or general education offer task flexibility for the employing organization, but also have greater alternative opportunities

outside the organization. This, coupled with strong professional (versus institutional) loyalties serve to reduce professionals' commitment to the employing organization and thus increase their likelihood of leaving. Empirical support for this assertion comes from Parsons²⁹ who studied turnover in a number of industries, including hospitals. Thus, we expect that in hospitals where the composition of the staff favors professionally trained registered nurses rather than less professionalized members of the health team (nursing assistants and licensed vocational nurses) higher turnover rates would be found. Extending this argument, hospitals whose nursing staffs have the highest proportions of nurses with advanced degrees will experience the greatest turnover. The first hypothesis follows from this argument.

Hypothesis One: The greater the professionalization of the hospital work force, the higher the turnover among registered nurses.

Restrictiveness of Working Conditions

Following Scott and his colleagues²¹ the more powerful a group is within the organization, the more influence it will have on how work will be designed and carried out. For example, physicians are relatively more powerful than hospital administrators as they bring a needed resource, patients, to the hospital. They also have considerable influence over the conditions affecting their work and can negotiate with hospital administration from a relatively strong position. Since nurses' power is relatively weaker than that of hospital administration, it is assumed that they will have less to say about the conditions affecting their work.

Resource use is the focal issue that distinguishes the administrative and professional models of nursing care and centers on the perception of the amount of resources necessary to provide appropriate nursing care. When

hospital administration is responsible for organizing the work of staff nurses, issues of cost and efficiency predominate. Because they are removed from the process of patient care, administrators are more likely to perceive nursing activity as routine and accordingly staff the hospital to minimize costs. Staffing patterns dictated by administration generally are characterized by high patient to nurse ratios and by rotation of nurses between shifts, both cost containment strategies ^{30,31}.

In general, this administrative view of work organization is not shared by professionally oriented nurses ³². For example, when staffing patterns require the nurse to supervise the care of large numbers of patients irrespective of the acuity of the patient group, nurses become overworked and frustrated because the types of care consistent with their professional beliefs can not be provided. In a prospective study of 223 baccalaureate nurses, Kramer and Baker ³³ noted that nurses who did not relinquish their professional values during hospital employment were prone to leave even though they may have been evaluated positively by their employers. Role conflict engendered by the incompatibility of nurses' professional values and hospital bureaucracy has been cited by others as the explanation for exiting ^{17,34}. Thus, nurses who discover that their professional values are incompatible with the working conditions in the hospital are particularly vulnerable to turnover. Hypothesis Two follows from this line of reasoning:

Hypothesis Two: The more restrictive the working conditions in the hospital, the higher the turnover among registered nurses.

Professional Organizational Design and Work Incentives

Research on professionals working in organizational settings suggests that organizational units staffed by professional members function more

effectively when practice patterns and work arrangements involve a high degree of discretion in decision making as well as collegial contact and exchange during the work process ^{35,36,37}. According to Myrtle and Robertson ³⁸ this mode of task organization promotes interaction with other professionals in the organization and thereby acts as a mechanism for reinforcing and sustaining the professional identity of the worker.

A key dimension of the professional conception of hospital organization concerns the existence of professional practice patterns in the hospital. Nurse practice patterns (e.g., team nursing or primary nursing) describe how work is organized in a particular patient care unit, specifically with regard to who makes patient care decisions and how nurses will interact with patients. Different practice patterns provide greater or fewer opportunities for clinical decision making by nurses and more time spent by a single nurse in caring for a group of patients. For example, the most professional practice patterns give the nurse maximum discretion in planning and carrying out the nursing care for individual or groups of patients (total patient care). Total care provided by the same nurse (on the day and/or evening shift) throughout the patient's hospitalization is called primary care; total care provided geographically is called modular care. As Bloom and Alexander ³¹ have noted, more bureaucratic control is found in other practice patterns (team and functional nursing). In such patterns, the care giving tasks for each patient are divided among several members of the nursing staff and can be controlled by nurse-members of the administrative hierarchy. It is expected that hospitals, whose nursing staffs have greater participation in patient care decision-making, will also experience less turnover.

A second dimension of professional structure in the hospital setting

relates to opportunities for professional advancement. Following Thompson²⁵, hospital nursing has generally been defined as both an early and low ceiling occupation, one in which the gradations between entry level and top jobs are few. Further, the climb to the top position (ceiling) often arises before the individual's social needs for economic achievement have been satisfied. Until recently, professional career ladders were rarely found in hospital settings. In general, nurses had two choices for advancement, moving outside of the professional sphere into nursing administration (e.g., becoming a head nurse or supervising nurse) or leaving the organization for alternative employment opportunities (e.g., community health nursing). In an effort to stem the tide, many hospitals have developed specialist roles for nurses as a means of expanding professional career opportunities and retaining committed individuals with clinical expertise. These specialist roles have several steps for advancement and as such are an alternative "clinical" career ladder. As a second type of professional structure in the hospital, the existence of clinical career ladders for staff nurses is, therefore, expected to be related to lower nursing turnover.

Hypothesis Three: The more professionally designed the nursing service of the hospital, the lower the turnover among registered nurses.

In addition to the opportunities for interaction at work, professionally socialized workers also look to opportunities outside the work setting for professional growth and stimulation. These extrinsic job benefits, such as going to professional meetings, provide opportunities for increasing skills and collegial interaction, and are reinforced by professional organizations which require continuing education for relicensure. Therefore, it is expected

that the provision of "professional" work incentives to nurses will reduce nursing turnover by providing support for professional development outside the organization.

Hypothesis Four: The more professional work incentives offered by the hospital, the lower the turnover among registered nurses.

Organizational Demography

Pfeiffer and O'Reilly ²² have evaluated the effect of gaps in time of entry into the organization and the distribution of length of service among cohorts of hospital nurses on turnover. Variation in cohort size at time of employment is thought to effect turnover for the following reasons: advancement opportunities within the organization may fluctuate providing less career mobility for some cohorts; the burden for socializing new cohorts may fall unequally among older cohorts resulting in inter-group tension; each cohort's experiences on entering the organization may be quite different and may result in conflict between the cohorts and difficulty in integrating dissimilar persons into the work units. In other words, dominance of the longer tenured cohort results in demographic stability. Organizations in which cohorts are more demographically variable (heterogenous) in terms of date of work entry and length of tenure in the organization are found to experience greater turnover ²². This finding is consistent with research in other organizations (e.g., universities) and holds up even when other factors which might predict turnover are controlled (local labor market, unemployment rate, wage rates, etc.) ³⁹. If one tenure cohort is larger and therefore, pre-dominant in the organization, a less variable pattern exists. Following this line of reasoning it will be easier for new members to become integrated and they will be more likely to stay in the organization.

Hypothesis Five: The less variation in tenure cohort size within the nursing staff, the lower the turnover among registered nurses.

Models of turnover in the economics literature have emphasized extrinsic rewards such as wages and benefits and the opportunities for alternative employment as critical predictors of turnover ²⁹. This major alternative explanation will be operationalized as a set of control variables for the test of our hypothesized model.

According to the economic thesis, turnover will be negatively related to the wages and benefits offered by the hospital (organizational economic opportunity) and positively related to the availability of local employment opportunities outside the hospital (environmental economic opportunity).

Figure 1 summarizes the hypothesized relationships in the model.

Place Figure 1 About Here

METHODS

Data Sources

The primary source of data for this analysis was the Nurse Personnel Study conducted by the American Hospital Association ⁴⁰ in 1981. This survey was developed to obtain information about vacancies and turnover among hospital nursing personnel. The questionnaire elicited aggregate (hospital level) information on three aspects of the organization: 1) vacancies and turnover of both full and part-time nursing staff for inpatient services, outpatient services and specialty services (intensive care and coronary care), 2) work organization, including wages and fringe benefits, and recruitment

practices, and 3) orientation practices for nurses. The questionnaire was addressed to the Chief Executive Officer of each hospital with the expectation that the Personnel Director's Office would assist in completing it. Because of the objective nature of the survey items, subjectivity bias was not a consideration in the data collection process. Telephone follow-up by AHA staff was conducted to ascertain the reliability and accuracy of the data.

Data from two additional sources were merged to the Nursing Personnel Study data file. The 1981 AHA annual survey of hospitals and the Area Resource File. Data from the AHA annual survey of hospitals provided additional information on the hospitals general organizational structure. The Area Resource File provided county-level data on the external environment of the hospital.

The Sample

A 20 percent random sample (1,223 hospitals) was drawn from a universe of approximately 6110 hospitals throughout the country. The Nursing Personnel Survey was sent to hospitals in three waves with a telephone follow-up by AHA 40. AHA Regional Directors were asked to encourage member hospitals to complete and return the questionnaire. These efforts yielded a 59.9 percent response rate, a sample of 732 hospitals.

For the purposes of this analysis, a "subsample" of AHA's sample was drawn using the following criteria: 1) hospitals were included if they reported four consecutive quarters of turnover data (January 1, 1980 to December 31, 1980), 2) only hospitals reporting 10 or more full-time staff RNs were included to minimize magnification of personnel changes in small hospitals, and 3) only respondents providing complete turnover data for full-time registered nurses (RNs) were included to avoid contamination of turnover

calculations through the inclusion of part-time registered nurses.

The AHA's preliminary analysis of the Nursing Personnel survey indicated that the response rate was adversely affected by the survey's length and by the complexity of the vacancy and turnover questions. Consequently, many of the cases were lost due to missing data on the turnover question (complete responses were required for four continuous quarters of the calendar year). Additional cases were lost due to listwise deletion in the multivariate analysis. The final usable sample was 435 hospitals.

To insure that this "subsample" was representative, a comparison was made to the original sample with regard to hospital size, region of the country, and ownership of the hospital. The subsample and the original sample were closely matched on two of these characteristics, size and ownership. However, in the subsample there was a slight over-representation of hospitals in the Northeast region of the country.

Measurement

Table 1 presents measures of each variable and descriptive statistics. Two versions of the dependent variable, voluntary turnover, were developed. The first version, voluntary turnover rate, was developed for descriptive purposes. The numerator of this rate is based on the number of full-time registered nurses who voluntarily resigned from the position from January 1, 1980 through December 13, 1980 (four calendar year quarters). Individuals who were promoted, retired, fired, died or left due to disability were not included in this voluntary turnover calculation. The denominator consists of the mean number of registered nurses on staff for each quarter during the same period. Both turnover and staffing level data were reported by each hospital for each quarter; the overall measure was calculated by the researchers. This

method of measuring of turnover is generally consistent with measures used in other studies ⁵.

The second version of turnover was developed for the multivariate model. In this version, the absolute number of full-time nurses who voluntarily left was used as the dependent variable. The log of this voluntary turnover value was taken to normalize the distribution of the dependent variable in accordance with the assumptions of ordinary least squares regression ⁴¹. The full-time registered nursing staff size was employed as an explicit control and is included as an independent variable in the regression model. Controlling for the effects of size in this fashion, eliminates problems of definitional dependency that occur through the use of ratio variables ^{22, 42}.

Place Table 1 About Here

Professionalization of the hospital nursing staff refers to the extent of, and presumable influence of, registered nurses (RNs) in the work force. Registered nurses are distinguished from the remainder of the nursing staff by the length and generality of their training and the professional socialization they receive during their training. Formerly, nurses were trained in three year diploma programs often affiliated with hospitals. Completion of the program allowed them to sit for the registered nurse examination. Today, the most common training institution is the two year program found in community colleges. Completion of the program prepares graduates to take the exam and also provides a modicum of general education. A smaller but growing proportion of nurses are receiving their professional nurse training in a general educational setting where they receive a baccalaureate degree. An

even smaller group receive an advanced degree (MSN, DSN or Ph.D.). Two measures of nursing staff professionalization were employed: 1) the ratio of registered nurses to total nursing staff and 2) the ratio of nurses with a baccalaureate, masters or doctoral degree to the total registered nursing (RN) staff. The first measure is designed to differentiate between professional education and technical training and the second to assess the added effect of education within the cohort of staff RNs ²⁴.

Two measures of work conditions were included in the model: 1) shiftwork and 2) staffing ratio. Shiftwork is defined as the percent of full-time registered nurses who rotated shifts. Since the hospital is a 24 hour organization, three 8 hour shifts are operated. If permanent evening (approximately 3 p.m. - 11 p.m.) and night (11 p.m. - 7 a.m.) staffs do not exist due to vacancies or hospital policy, day staffs rotate to cover these shifts. The RN staffing ratio is defined as the proportion of full-time registered nurses on the nursing staff to the number of beds set up and staffed for use. This measure is an indicator of the nurses' work load.

The extent to which the hospital was designed to accommodate the professional practice patterns of staff RNs was assessed by two measures. The first was the presence of a "clinical" career ladder for the nursing staff in the hospital. Respondents were asked to report "the number of levels of clinical positions for registered nurses on the full-time nursing staff excluding management levels, e.g., head nurse, supervisors and assistant directors." Hospitals reporting 0-1 clinical levels were coded as "0" while hospitals with two or more clinical levels were coded as "1".

A second measure was the presence of professional nursing practice patterns in the hospital. This was defined as the proportion of hospital beds

located in total nursing care, primary and modular nursing units. Standard definitions for each of these patient care patterns were provided in the survey. Total nursing care is defined as "the provision of patient care whereby each of the nursing staff is assigned to give complete care to a group of patients during a given shift." Primary nursing is "the provision of (total) patient care in which a nurse on the day shift is assigned to and responsible for the total nursing care plan of a patient during his hospital stay." When primary nurse-to-patient relationships for all nursing care activities exist for a geographical area within the hospital, it is called modular nursing ⁴⁰. Survey results indicate that 49.1% of the patient care was delivered by total patient care, 12.9 percent through primary care and 4.4 percent in modular care. The remainder of patient care was delivered through functional (15.8 percent) and team nursing (13.8 percent) or was not specified.

Professional benefits was measured as the sum of the following benefits provided through hospital sponsorship or subsidization: 1) continuing education tuition, 2) professional meeting fees, 3) professional membership fees and 4) clinical specialty certification.

To assess the predominance of the longer tenured nursing cohort within the hospital's demographic structure the proportion of the total nurses with a greater than a two year tenure was measured. This approach is consistent with earlier work in both hospitals and community agencies where the demographic composition generally consists of two primary cohorts of nurses, one who has short tenure (less than two years) and the other with longer organization tenure (most who worked 8 years or more) ⁴³.

As discussed previously, a number of additional variables were considered

to rule out economic opportunity as an alternative explanation for turnover. Two indicators of organizational economic opportunity were included: 1) number of non-professional benefits offered by category: medical benefits (life insurance, basic health insurance, major medical/ comprehensive insurance, dental insurance, and disability insurance), retirement insurance, or personal benefits (maternity leave and child care) and 2) the starting wage for new diploma graduates. (The starting wage for new diploma graduates was chosen as a standardized measure of salary that would have applicability across hospitals.)

Five environmental variables which relate to environmental economic opportunity were developed for the analysis; 1) hospital competition, defined as the ratio of hospitals in a county to its population; 2) the unemployment rate in the area; 3) the average occupancy rate of each hospital within the sample; 4) the proportional change in the number of registered nurses in the county between 1970-1979; and 5) nurse competition, as defined as the number of registered nurses per hospital bed per population in the county.

Three hospital organization level variables were included as control variables: size, ownership, and regional location. The size of the hospital was defined as the average number of full-time RNs on the payroll from January 1, 1980 through December 31, 1980. The ownership of the hospital was defined as whether the hospital was investor-owned (for-profit), operated by state or local government, or operated as a voluntary, not-for-profit hospital. The voluntary, not-for-profit hospital was designated the reference group in the multivariate model. Two geographical measures of regional location are used. Hospitals located in an SMSA (Standard Metropolitan Statistical Area) were (coded as "1"), all others were considered non-urban (coded as "0"). Region

of the county was measured by a series of dummy variables corresponding to four geographical regions of the country (South, West, Northeast and North-Central): the Northeast category was omitted as the reference group in the multivariate analysis.

RESULTS

Table 2 displays organizational turnover rates by type of hospital. The mean turnover rate for all sample hospitals was 0.26 (S.D. = 0.24). Hospital size bore little relationship to turnover rates (the mean ranged from 0.23 to 0.31), although hospitals with more than 300 beds had a higher turnover rate than other size categories. Regional location, however, was strongly associated with turnover. Hospitals in the Northeast had the lowest turnover rates ($\bar{X} = .22$) while those in the West had the highest turnover rates ($\bar{X} = .38$). Whether the hospital was located in an urban or non urban area had little effect on turnover. Government ($\bar{X} = .26$) and not-for-profit hospitals had the lowest turnover rates ($\bar{X} = 0.25$) while church hospitals had the highest rates ($\bar{X} = 0.32$).

Place Table 2 About Here

Zero order intercorrelations between turnover and the major independent variables were next examined. As shown in Table 3, the rate of voluntary turnover was positively related to the professionalization of the nursing staff as measured by the proportion of nurses with advanced degrees ($r = .20$). Turnover rate was unrelated to the workload, the percent of nurses on rotating shifts, practice type, presence of career ladder or number of professional benefits provided by the hospital. Hospitals which have the

highest percentage of their nursing staff with tenure of more than two years are significantly less likely to experience turnover ($r = -.28$).

Place Table 3 About Here

Contrary to the economic opportunity thesis a higher wage rate paid to new graduates was associated with higher turnover. None of the measures of external economic opportunities were related significantly to the rate of turnover.

Among the organization structural variables, size exhibits strong associations with other measures of hospital work organization. Nursing staff size is negatively related to staffing ratio ($r = -.33$), and positively related to the percentage of nurses on rotating shifts ($r = .21$), the ratio of registered nurses to total nursing staff ($r = .36$), and the ratio of nurses with advanced degrees to all registered nurses ($r = .25$). None of the intercorrelations between the independent variables are sufficiently high as to suggest multicollinearity.

To assess the simultaneous effects of the independent variables, we utilized an ordinary least squares regression model; all variables were entered simultaneously. The log of turnover for the hospital was regressed on the independent variables described above (see Table 1). The total equation is significant ($F = 10.52$; $df 24, 410$; $p = .0001$), and explains 35 percent of the variance (Table 4).

Place Table 4 About Here

According to Hypothesis One, we expected to find that hospitals with more professionalized nursing staffs would have higher voluntary turnover than hospitals whose staffs were less professionalized. To test Hypothesis One two measures of professionalization were used. As predicted, the ratio of registered nurses to total nursing staff was significantly related to turnover ($\beta = .25$; $p < .0001$). The other measure, the ratio of nurses with a BS, MS, or doctoral degree to total RN staff, had no independent effect on turnover.

It was also hypothesized that the more restrictive the working conditions, the greater the nursing turnover. Consistent with Hypothesis Two the proportion of registered nurses on the nursing staff as a ratio to beds set up was negatively related to turnover ($\beta = -.29$; $p = .0001$), but the percentage of full-time RN staff on rotating shifts was not associated with nursing turnover.

Hypotheses Three and Four consider the relationship of professional work design and professional incentives to nursing turnover. It was predicted that hospitals designed for professional employees, and those that provided more professional incentives would experience less turnover. The first indicator of the professionally designed organization was mode of patient care delivery. Controlling for the other variables in the model, the use of total, primary, and modular nursing organization for patient care had a significant but marginal effect on turnover ($\beta = -.07$; $p = .09$). The existence of a career ladder allowing nurses to gain organization status through their clinical expertise rather than their administrative expertise was unrelated to turnover. Thus, Hypothesis Three is only partially supported by the data. The provision of professional benefits is related to higher rather than lower

turnover in the hospital ($\beta = .09, p < .05$), indicating lack of support for Hypothesis Four. In Hypothesis Five we predicted that less variation in tenure cohorts within the hospital increases the stability of the workforce. Consistent with this hypothesis is the finding that hospitals with a larger proportion of longer tenured nurses have lower turnover ($\beta = -.15, p = .0004$).

It is also interesting to note that the economic opportunity explanation has inconsistent effects on turnover. Consistent with the findings of Spencer⁴⁴ the hospital wage structure is related to turnover counter intuitively, i.e. hospitals with higher wages for beginning nurses are likely to have greater rather than lesser turnover ($\beta = .12; p = .02$). Also, inconsistent with the economic opportunity explanation, hospitals in areas with greater competition have lower turnover. Also hospitals in the areas in which there are greater supply of nurses (to beds per county population) have higher turnover.

Two of the three control variables exhibited significant associations with turnover in the multivariate model. Consistent with expectations that hospitals with larger staffs experience greater turnover, organizations size was a powerful predictor in the model ($\beta = .23; p = .0001$). Regional location of the hospital was also a significant determinant of nursing turnover. Hospitals in the South ($\beta = .12; p = .06$) experienced greater nursing turnover than those in the Northeast reference region. Ownership/control of the hospital, however, was not significantly related to turnover when other variables in the model were controlled.

As a final step, a commonality analysis was performed to identify the independent contributions of work organization and economic opportunity

variables in explaining nursing turnover. The strategy of commonality analysis is based on separating the explained variance in turnover into portions unique to work organizations (and economic opportunity) and the set of control variables. The unique contribution of the work organization set is the variance attributable to it when it is entered last into the regression model. It is represented as the squared semi-partial correlation between work organization and turnover after partialing out the effects of the control variables ⁴⁵. This analysis addresses commonalities of variable sets rather than individual measurement items. In this fashion, problems of interpreting higher order commonalities are avoided.

The R^2 difference between the combined regression model, (control variables and work organization variables) and the regression containing only the control variables was .13 (.33 - .20). When the economic opportunity variables were substituted for the work organization variables, this procedure resulted in an R^2 difference of only .03 (.23 - .20).

Based on a standard F test, the independent contribution of the work organization variables for the model was significant at $F = 9.85$ ($p < .001$), while the contribution of the economic opportunity set was not significant ($F = 1.36$). These results indicate that as a theoretical construct, the social organization of work exercises a direct and independent effect on aggregate turnover among hospital nurses. The effect is stronger for the social organization variables than for the economic opportunity variables.

DISCUSSION AND CONCLUSIONS

Our findings suggest that voluntary turnover among nurses is a complex phenomena and is related to economic as well as organizational factors. To

assess the effects of the social organization of work, we considered five dimensions: the professionalization of the work force, restrictiveness of working conditions, professional organizational design and incentives, and the organization's demographic variability. To assess the effects of economic conditions as an alternative explanation of turnover, we considered economic opportunities offered within the organizations (wages and benefits), and economic opportunities outside the focal organization (alternative opportunities).

Social Organization of Work

Hospitals in which the nursing staff is composed of a higher ratio of registered nurses (professionals) have greater turnover. This finding is consistent with earlier studies of turnover by both sociologists and economists^{5,29}. It suggests the importance of the organizational culture in affecting behavior⁴⁶. When nurses work in settings where there is a strong professional culture, their sense of their potential is reinforced, and alternative opportunities available to them are introduced. It should not be surprising that nurses working in this environment would leave as opportunities become available to them, either as new positions within the employing organization or in other organizations in the area. One might expect that turnover in this situation would be to another position rather than turnover due to family or other personal factors. Without individual level data, however, this line of inquiry cannot be pursued.

Second, turnover can also be explained by restrictiveness of the working conditions. Hospitals experiencing higher turnover were ones where the (staffing ratio, ratio of the proportion of nurses to beds) was lower. By focusing on the organizational context of the nurses' work, the effect of

policies set by administrators for work within the organization can be seen. Our findings indicate that nurse staffing ratios as a measure of working conditions is an important determinate of turnover. Measures of working conditions reflect policies designed, perhaps, with short term cost savings in mind (such as increased productivity). The cost to the organization of voluntary turnover may not be considered.

Staffing patterns, measured by staffing ratios, are influenced by the power relations between administration and nursing service. When the balance of power is in the favor of administration, higher staffing ratios, consistent with the view of the nurse as a non-professional worker, prevail. When nursing service is relatively more powerful, definitions of workload are based on professional considerations including the acuity of the patients being cared for, and professional standards of patient care delivery ³¹.

Third, turnover was only partially affected by professional work design.

It is somewhat surprising that a professionally oriented policy such as the existence of a clinical career ladder had almost no effect on nursing turnover. Providing nursing care which gives greater clinical decision making to the nursing staff was only marginally related to lower levels of turnover (beta = $-.07$ $p < .09$). It may be that the former policy is less important because it does not effect the day to day work life of the nurse. A heavy schedule and having input into clinical decision making are daily experiences. That professional incentives increase turnover provides further evidence that the existence of an organization with a professional culture promotes the development of a group of nurses who are professionally opportunistic. Alternatively, hospitals with a professional culture may attract nurses who are already highly mobile. Prospective analyses are required to definitively

explain these findings.

Finally, how well the hospital integrates new members into the social milieu of the organization is importantly related to turnover. Once a new member is recruited, organizational factors such as its demographic composition will affect whether the individual will stay or leave. Hospitals in which a majority of their nurses have been employed more than two years were found to have lower turnover than those dominated by younger members. This finding becomes even stronger when the larger and longer tenure group has been employed more than five years. This finding is consistent with the general argument that turnover will increase to the extent that work units are heterogeneous or dissimilar in terms of time of entry into the organization and in terms of distribution of length-of-service (tenure) among cohorts ²³. McCain and his colleagues also found that the organization was more stable when there was less variability in tenure cohort size ³⁹. In contrast to Hypothesis One where we found that a professional ideology may increase turnover, a predominant cohort with longer tenure may be more committed to the organization. Predominance of the older cohort suggests a culture which includes organizational loyalty ^{46, 47}.

Conceptualizing turnover from an economic perspective has independent effects on turnover but these effects do not make a statistically significant contribution to our model. Policies involving benefit structure seem to have little impact on turnover; the existence of a retirement benefit is the only exception and, like professional benefits is marginally related to higher turnover. This finding is consistent with the views of McCloskey ¹⁷ who separates factors which draw nurses to the job, and those that are important factors for exiting the organization. She found that salary and working

conditions were important for taking a job while professional self-actualization was an important cause of turnover. Her results cannot be related to the ones reported here as the design and level of analysis differ. Because these data were collected cross-sectionally, we cannot distinguish between entry and exit factors. Since these data are organizational level data, we cannot determine whether individual factors (e.g., lack of professional self-actualization) or organizational factors (e.g., the existence of policies which provide staff with professional prerogatives) are more important. These data are inconsistent with economic theories of human capital which predict that higher starting wages of nurses and the existence of retirement benefits would be related to a lower quit rate ²⁹. One explanation is that hospitals already experiencing high turnover increase wages and benefits to attract nurses. The cross-sectional data does not allow us to establish a clear causal ordering between wages and benefits and turnover.

Environmental factors related to economic opportunity are also important in understanding the turnover phenomenon. Models of turnover in the economics literature have emphasized the importance of alternative employment options, typically indexed by the unemployment rate ^{48, 49} as well as competition between hospitals for staff. Two of the measures of alternative employment opportunities were important. Contrary to March and Simon ⁴⁸ and Halbur ⁵⁰ we did not find the expected relationship between voluntary turnover and unemployment rate, even in the bivariate measures. Hospital competition, (the number of hospitals per population in the county) however, was a significant predictor of turnover. Contrary to expectations, hospitals in counties with higher ratios of hospitals to population experienced lower turnover.

Examination of these data suggest it is the population density of the county rather than the number of hospitals in the area that accounts for this finding, suggesting that the turnover rate is related to alternative employment opportunities outside of hospitals. Also inconsistent with the literature is the finding that the greater the supply of nurses, and presumably less alternative employment opportunities, turnover is higher.

Several of the control variables were also independently related to turnover. Larger hospitals experienced more turnover. Characteristics of hospital location were also important. Hospitals in counties with more hospitals experienced lower turnover, while those in nonurban locations and in the South experienced greater turnover. Since the sample was over-represented by hospitals in the Northeast region, generalization of the findings to all hospitals is tenuous.

It is not unexpected that organizational size, a major structural characteristic, would have such a profound effect on turnover. Larger hospitals, of course, have larger staffs, and thus provide more opportunity for staff turnover. In this analysis, size was incorporated as an explicit control variable to avoid the problems of definitional dependency that occur by the use of ratio measures^{42,51}. However, by including size as a control variable, the amount of variance explained may be artificially inflated.

Whether or not to stay in a job or leave is an individual level decision, however, organizational factors play a major role. This analysis suggests that the organizational level of analysis is a fruitful way of conceptualizing turnover. From this perspective one can see how policies which relate to working conditions come to affect the organization's turnover and vacancy rate. Administrators set policies for organizational staffing. These

policies may be viewed by management as improving organizational efficiency by increasing the staff to patient ratio. However, these data suggest that such policies can have negative effects as well.

Policy considerations of enlightened hospital administrators and nursing leaders should include job sharing and child care provisions. Permanent staffs for evening and night shifts might be recruited so that the necessity for nurses to rotate is reduced. Both norms of professional practice, and patient acuity should be explicit in developing policies for staffing, and for delivery of patient care. Finally, administration should encourage those involved in orientation and inservice training to facilitate the integration of new cohorts of nurses.

In conclusion, this study explores an organizational analysis of turnover, and demonstrates the utility of conceptualizing the problem from this perspective. One direction for future research is to expand the model to include other organizational, and environmental variables. For example, crime rate in the area may increase nursing turnover. A second direction is to collect longitudinal data to establish the causal ordering of variables. Another direction is to consider cross national comparisons.

wp42bloom/effect.#

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FIGURE 1.

SUMMARY OF PREDICTED RELATIONSHIPS
BETWEEN ORGANIZATIONAL CHARACTERISTICS
AND VOLUNTARY TURNOVER OF HOSPITAL NURSES

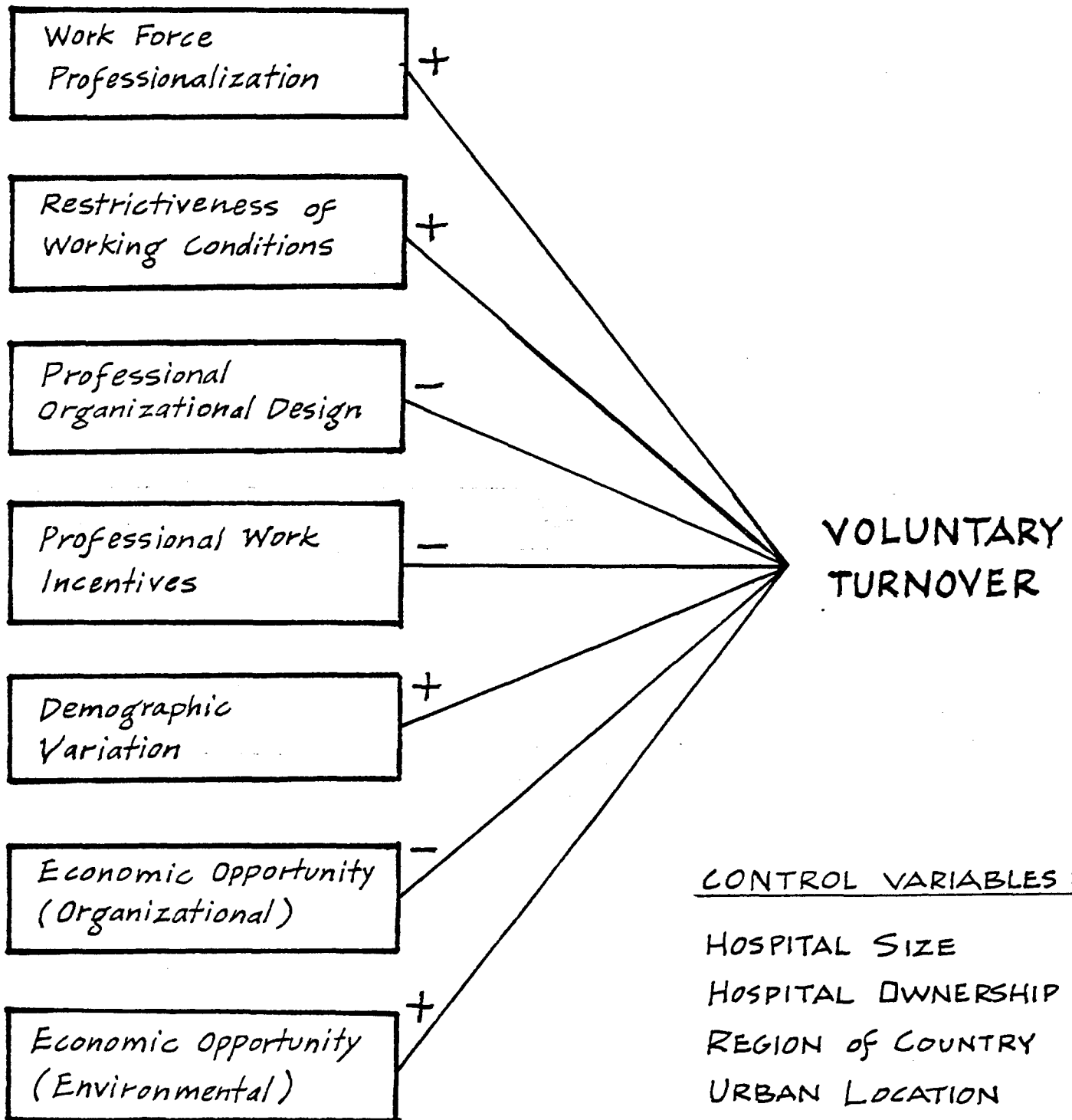


TABLE 1
Means, Standard Deviations, and Definitions of Variables

Variable Name	Measure	Mean	S.D.
<u>Work Force Professionalization</u>			
1. Professionalization	Ratio of RNs to Other Nursing Staff	.49	.15
2. Professionalization 2	Percent of RN Staff with BS, MS, Ph.D.	20.04	14.45
<u>Restrictiveness of Working Conditions</u>			
3. Staffing Ratio	Ratio of RN FTES/beds set up & staffed for use	.003	.003
4. Shiftwork	Percent fulltime RNs who rotate shifts	37.40	34.62
<u>Professional Organization Design</u>			
5. Practice Type	Percent of beds in primary & modular nursing	18.67	31.10
6. Career Ladder	Clinical Steps (0-1=0) (2+=1)	.55	.47
<u>Professional Work Incentives</u>			
7. Professional Benefits	Number of professional benefits (0-4)	1.67	.92
<u>Demographic Variation</u>			
8. Proportion of length tenure cohort	Proportion RN staff with > 2 yrs tenure	.57	.23
<u>Economic Opportunity (Organizational)</u>			
9. Medical Benefits	Number of medical benefits (0-5)	3.80	1.16
10. Personal Benefits	Number of personal benefits (0-2)	0.58	0.53
11. Retirement Benefits	Retirement benefit Yes=1; No=0	0.83	0.37
12. Wages for New RN's	\$/hr. for new diploma grad	7.47	0.77
<u>Control Variables</u>			
13. Organization Size	Fulltime RNs on payroll	119.52	111.94
14. Hospital Ownership	For profit	.067	0.25
	Not-for-Profit (reference)	.70	0.46
	Government	.24	0.43
15. Region of Country	South	.30	0.46
	West	.10	0.30
	North Central	.24	0.43
	Northeast (reference)	.36	0.43
16. Urban	Location in Urban SMSA	.70	0.45
<u>Economic Opportunity (Environmental)</u>			
17. Hospitals Competition	Hospitals in region/100 pop.	.004	0.003
18. Unemployment Rate	Unemployment rate in area	6.91	2.03
19. RN Change in Area	Proportional change in number of RNs (1970-1979)	0.77	0.67
20. RN Competition	RNs county/hospital beds	0.56	0.18
21. Average Occupancy Rate	Mean occupancy rate of Hospitals in service area	0.76	0.12
<u>Voluntary Turnover</u>			
22. Turnover Rate	Voluntary turnover/ staff size	0.26	0.24
23. Turnover	Log of voluntary turnover	1.09	1.02

Table 2
Turnover Rate for Size, Location and Ownership

	N	Mean	Standard Deviation
All Sample Hospitals	435	0.26	0.24
Size			
Less than 99 beds	80	0.23	0.21
100-300 beds	209	0.25	0.16
Greater than 300 beds	146	0.31	0.34
Region			
South	131	0.31	0.25
West	44	0.38	0.50
North Central	105	0.23	0.13
Northeast	155	0.22	0.15
Location*			
Urban	305	0.27	0.27
Non-urban	128	0.24	0.17
Ownership			
For Profit	29	0.29	0.24
Not-for-Profit	303	0.26	0.26
Government	103	0.26	0.20

* Two hospitals with missing data; N=433

Table 3
Correlations For All Variables in Model

Table	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19. Ownership			15. Region			21	22	23											
																		FP	GOV	NFP	SO	WEST	NC				NE										
1. Professionalization	.21	.18	.16	.28	-.07	.05	-.04	.24	-.04	.10	.15	-.27	.07	-.10	.48	.13	.36	-.04	-.25	.25	-.33	.16	.06	.16	.30	.30	.06										
2. Professionalization 2		-.08	.17	.16	.04	.00	-.22	.12	-.05	.02	.21	-.07	-.17	.00	.14	.13	.25	.02	-.09	.08	-.04	.04	.13	-.11	.22	.22	.20										
3. Staffing Ratio			-.14	.05	-.03	-.08	-.04	-.00	.02	-.11	-.02	.13	.10	.17	-.01	-.31	-.33	.11	.06	-.11	-.06	.29	-.05	-.08	-.13	-.33	-.08										
4. Shift Work				.04	-.09	.01	.03	-.14	.10	.10	-.06	-.06	-.04	-.14	.14	.12	.21	-.16	-.08	.16	-.09	-.16	-.01	.20	.03	.12	.05										
5. Practice Type					.04	.12	-.03	.14	-.02	.05	.04	-.09	-.07	.08	.08	.08	.16	.02	-.05	.04	-.05	-.04	.10	-.02	.09	.05	.02										
6. Career Ladder						-.14	-.05	.04	-.01	-.12	.05	-.02	.05	.04	-.02	-.05	.03	.04	.15	-.16	.03	.10	-.12	.01	.01	.02	.03										
7. Professional Benefits							-.05	-.05	.31	.23	.07	-.01	.03	.07	.05	.13	.02	.08	-.07	.02	.01	-.10	-.10	.14	.12	.07	.04										
8. Proportion of Length of Tenure								.14	.07	.25	-.13	-.06	.06	-.17	.00	.05	-.10	-.09	-.01	.06	-.11	-.08	-.02	.18	-.07	-.21	-.28										
9. Medical Benefits									.18	.43	.20	-.18	.11	-.09	.25	.25	.13	-.12	-.15	.20	-.29	.04	-.01	.26	.20	.06	-.00										
10. Personal Benefits										.12	.02	.05	.14	-.03	-.01	-.01	.01	-.03	.02	.00	-.00	-.04	-.05	.08	.02	-.01	.04										
11. Retirement Benefits											.03	-.08	-.00	-.18	.11	.24	.10	-.08	-.19	.22	-.11	-.10	-.01	.18	.03	.11	-.00										
12. Wages for New RNs												-.17	.08	-.01	.19	-.00	.14	.11	-.13	.07	-.22	.36	.14	-.13	.36	.20	.18										
13. Hospitals in Region/Pop.																-.01	.08	-.38	-.22	-.21	.08	.10	-.17	.18	.03	-.01	-.18	.45	-.20	.01							
14. Unemployment Rate																	-.20	.04	.19	-.06	-.12	.05	.02	-.30	.24	-.30	.40	-.04	-.11	-.08							
15. RN Change																		-.11	-.16	-.07	.15	.12	-.20	.40	.04	-.09	-.33	.04	.02	.08							
16. RN Competition																				.22	.28	-.03	-.18	.18	-.41	.09	-.08	.41	.44	.24	.07						
17. Average Occupancy Rate																					.33	-.25	-.06	.19	-.10	-.22	-.08	.30	.15	.17	-.09						
18. Organization's Size																						-.12	-.08	.14	-.09	-.09	.08	.08	.32	.44	-.05						
19. Hospital Ownership																																					
For Profit (FP)																																					
Government																																					
Non-Fed, Not-for-Profit																																					
20. Region of Country																																					
South																																					
West																																					
North Central																																					
North East																																					
21. Urban																																					
22. Turnover																																					
23. Turnover Rate																																					

.11, p= .05
 .16, p= .01
 .19, p= .001

Table 4
The Effect of Work Conditions and Professional Organization
on Nursing Turnover (N=435)

Variable	B	S.E.	Beta	T-Value
<u>Work Force Professionalization</u>				
1. Professionalization	1.68	0.35	0.25	4.73***
2. Professionalization 2	0.003	0.003	0.05	1.08
<u>Restrictiveness of Working Conditions</u>				
3. Staffing Ratio	-117.16	19.59	-0.29	-5.98***
4. Shiftwork	-0.0003	0.001	0.01	0.227
<u>Professional Organization Design</u>				
5. Practice Type	-0.002	0.001	-0.07	-1.69#
6. Career Ladder	0.08	0.09	0.04	0.89
<u>Professional Work Incentives</u>				
7. Professional Benefits	0.095	0.05	0.09	1.97*
<u>Demographic Variation</u>				
8. Proportion of length of tenure	-0.67	0.19	-0.15	-3.56**
<u>Economic Opportunity (Organizational)</u>				
9. Medical Benefits	-0.06	0.04	-0.07	-1.48
10. Personal Benefits	0.04	0.08	0.02	0.46
11. Retirement Benefits	0.23	0.13	0.08	1.78#
12. Wages for New RNs	0.15	0.06	0.12	2.37*
<u>Economic Opportunity (Environmental)</u>				
13. Hospitals in Region/Pop.	-36.95	17.78	-0.10	-2.08*
14. Unemployment Rate in Area	-0.02	0.03	-0.05	-0.93
15. Change in Number of RNs	0.03	0.07	0.02	0.45
16. RN Competition	0.59	0.31	0.10	1.91#
17. Average Occupancy Rate	-0.18	0.42	-0.02	-0.44
<u>Control Variables</u>				
18. Organizational Size	0.002	0.0004	0.23	4.67***
19. Hospital Ownership				
For Profit (FP)	-0.13	0.18	-0.03	-0.71
Government	-0.16	0.11	-0.07	-1.5
20. Region of Country				
South	0.28	0.15	0.12	1.9#
West	0.24	0.17	0.07	1.4
North Central	0.10	0.13	0.04	0.77
21. Urban Location	-0.33	0.11	-0.15	-2.88**
22. Intercept	-0.39	0.63	—	-0.62

Adjusted R² = 0.35 df = 24,410 F = 10.52

*** p < .0001
 ** p < .01
 * p < .05
 # p < .1