# **ORIGINAL ARTICLE**

# Analyzing U.S. nurse turnover: Are nurses leaving their jobs or the profession itself?

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### ABSTRACT

**Objective:** To examine and compare factors associated with making the decision to vacate a job (organizational turnover) versus leaving the profession (professional turnover) among registered nurses (RN) in the United States (U.S.).

**Methods:** Nationally representative data from the 2008 National Sample Survey of Registered Nurses was used. The sample consisted of 8,796 RNs who held an active RN license as of March 10, 2008, but changed a place of work or left the profession entirely. The analysis has been performed using SAS, version 9.3.

**Results:** The results of binary logistic regression revealed that RNs who reported work-related disability (OR = 14.51; p-value: < .001), illness (OR = 3.32; p-value: < .001), experienced high physical demands (OR = 1.57; p-value: < .001) or burnout (OR = 1.39; p-value: < .001), were unsatisfied with their schedule (OR = 2.16; p-value: < .001), or staffing arrangements (OR = 1.41; p-value: < .001) were more likely to leave the profession. Whereas RNs who reported high levels of stress (OR = 0.59; p-value: < .001) were unsatisfied with the organization's leadership (OR = 0.22; p-value: < .001), unsatisfied with their opportunity to advance their career (OR = 0.56; p-value: < .001), or were not adequately compensated (OR = 0.63; p-value: < .001), were more likely to leave the organization.

Conclusions: Policy makers and health care managers should be aware of the different factors that are associated with RNs' decision to leave the profession or an organization. Health care managers involved in the development of nurse retention strategies should address organizational leadership and consider development of comprehensive career-development programs. Policy makers should consider allocating additional resources to ensure that RN workforce is of adequate size, is qualified, and is able to provide high quality care in the U.S..

Key Words: Registered nurse, Turnover, Retention, Recruitment

# 1. Introduction

The current United States (U.S.) nurse turnover rate is 16.5% and is projected to increase over the next decade.<sup>[1]</sup> Evidence suggests that increased nurse turnover results in decreased patient access, patient safety and quality of care leading to adverse patient outcomes.<sup>[2–5]</sup> Simultaneously, nurse turnover

also has a spillover effect on the remaining RNs by increasing their workload and job stress which leads to burnout and subsequently to further turnover.<sup>[2,6]</sup> Nurse turnover can also adversely impact health care organizations' bottom line through higher recruitment and replacement costs.<sup>[7,8]</sup>

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Despite ongoing research interest in nurse turnover, there is significant variation in how this is defined, [7] ranging from the actual leaving the organization to the intent to leave in the near future. [9-11] Furthermore, the direction of leaving, yet another dimension of job turnover, has received very little attention in the literature.<sup>[4]</sup> The direction of leaving is the path that a registered nurse takes upon leaving an organization. An RN may change organization, but continue working in health care, referred to as organizational turnover, while another RN may leave the nursing field to work in a different industry, known as professional turnover.<sup>[12]</sup> Finally, an RN may leave the job market altogether and either become permanently unemployed or retired, referred to as involuntary turnover. Evidence from the job satisfaction literature clearly indicates that an RN's satisfaction with the job of nursing and satisfaction with the occupation of nursing are two distinct concepts.[13,14] The number of RNs dissatisfied with their job can have an impact on the nursing shortage in a given organization, but the number of nurses changing jobs does not reduce the total number of nurses in the labor force. However, when nurses become dissatisfied with nursing as a career choice, they may leave the profession altogether, depleting the nursing labor force. Previous research<sup>[13, 14]</sup> indicates that an RN's job satisfaction and satisfaction with occupation are influenced by different sets of factors. For example the work conditions at a given organization are more important for an RN's satisfaction with their current job, whereas the number of years until retirement is more important for an RN's satisfaction with their career and these concepts should be examined separately. Evidence suggests that similar situation is observed in the case of organizational and professional turnover.<sup>[15]</sup> For instance, Simon et al. reported that the work/home interface and personal factors were associated with organizational turnover, whereas organizational leadership and local context had a greater impact on professional turnover among German nurses.<sup>[15]</sup> To our knowledge, no research has been done to simultaneously examine and compare factors associated with organizational and professional turnover among RNs who left their organization or profession in the U.S..

The purpose of this study is to examine and compare factors associated with the decision by RNs to leave their profession or organization using nationally representative secondary data. The findings of this study will be of interest to health care managers involved in the design and implementation of nurse retention strategies as well as future recruitment initiatives. Additionally, our findings may be of interest to policy makers involved in the development of strategies aimed at ensuring that the nurse workforce is of adequate size, is qualified, and is able to provide high quality care in

the U.S..

# 1.1 Conceptual framework

Voluntary employee turnover has received considerable attention in management literature. [6,7,16] Price's causal model of turnover has been widely applied to examine organizational turnover among RNs.[16] This model suggests that a number of individual, organizational and environmental factors may be associated with an RN's decision to leave an organization. Given that this model has been widely applied and validated in the RN workforce this study adopted this model as a framework for examining factors associated with organizational turnover among RNs (see Figure 1).[16,17] To our knowledge, there is no unified conceptual framework of professional turnover that could be easily adapted to the RN workforce. Therefore, we have relied on organizational behavior literature and scarce evidence from previous studies on RN professional turnover to identify potential factors for this study. Evidence suggests that job satisfaction is an important precursor of an employee's decision to leave the profession.[18,19] Furthermore, it was shown that the social work environment, work organizational characteristics, workhome-interference and organizational commitment, which reflects employee's emotional attachment toward the occupation, were found to be associated with the decision by RNs to retire from the workforce, according to a large longitudinal European study. [20] The detailed explanation of the main factors included in the models of organizational and professional turnover is discussed below.

# 1.1.1 Individual factors

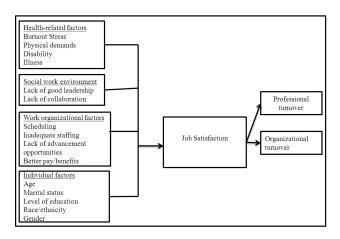
Evidence relating individual factors to nurse turnover has been fairly consistent over time. Specifically, nurse age has been inversely related to organizational turnover, *i.e.* younger nurses are more likely to leave whereas older nurses are more committed to the organization.<sup>[9–11]</sup> Other personal factors, such as having dependents in the household, were shown to be negatively associated with organizational and professional turnover.<sup>[4,21,22]</sup>

The relationship between nurses' level of education and organizational and professional turnover is less clear. Certain studies reported a positive relationship, with more educated nurses being more likely to leave an organization, whereas other studies suggested that nurses with higher educational levels (*e.g.* Master's degree) may have higher levels of professional commitment, and are therefore less likely to leave the profession.<sup>[22,23]</sup>

### 1.1.2 Health-related factors

Study findings uniformly agree that nurses who reported being stressed and burned out were more likely to leave their

jobs, thus contributing to organizational turnover.<sup>[24]</sup> For example, a sample of Canadian nurses reported that psychological exhaustion and unfairness influenced their decision to quit their jobs.<sup>[5]</sup> Other physical demands and health related concerns such as disability have been positively associated with both professional and organizational turnover as well.<sup>[25]</sup> Recent research also indicated that the absence of assistive technology or adequate workplace facilities may be the reason for low job satisfaction among individuals with disabilities.<sup>[25]</sup>



**Figure 1.** Model for studying nurse turnover based on the Price Model

### 1.1.3 Social work environment

The importance of leadership and effective management style on organizational and organizational turnover has been evident from previous empirical research. [26,27] Raup I *et al.* showed that transformational leadership was associated with lower staff turnover trends in comparison with other leadership styles. [3,27] More importantly, studies pointed out that the nurses' intent to leave their workplace and the subsequent organizational turnover are influenced more by supervisors than by co-workers, which can be due to the increased importance of mentoring in the nursing field. [10,28] Studies have also specifically discussed the importance of teams and collaboration at the workplace to motivate employees to stay with an organization or within the nursing profession. [29,30]

# 1.1.4 Work organizational factors

Gardner *et al.* reported that nurses who disagreed with staffing and scheduling in their units were more likely to leave their jobs. [24] Nurses' perceptions of advancement opportunities have been shown to influence turnover as well. A study of hospital-based nurses from ten European countries reported that nurses' perceptions about career development opportunities were associated with increased intent to leave both organization or profession. [21] Pay and other benefits

have been shown to influence nurses' intent to leave an organization and is more important for males than females.<sup>[23]</sup> However, Frijters *et al.* reported that an increase in nurses' pay had a low impact on retention rates, which suggests that an increase in pay alone will not solve the organizational turnover issue.<sup>[31]</sup>

# 1.1.5 Job satisfaction

Job satisfaction can be defined as the extent to which an employee likes his or her job.<sup>[32]</sup> It has been consistently associated with the intent to leave and actual organizational turnover.<sup>[33]</sup> Nursing studies have generally estimated that a higher number of observed resignations are a result of job dissatisfaction rather than personal factors.<sup>[34,35]</sup> Furthermore, Frijters and colleagues reported that job satisfaction was more important than the outside opportunities.<sup>[31]</sup>

### 2. METHODS

This study uses cross-sectional design to investigate whether similar predictors are associated with an RN's decision to leave the organization versus leaving the profession altogether. The data are derived from a publicly available secondary dataset, the National Sample Survey of Registered Nurses (NSSRN) 2008, which was collected by the Department of Health and Human Services. The NSSRN is based on a randomly selected sample of individual RNs from each state's register of licensed RNs. The data collection design was based on the stratified systematic sampling in each state with stratification by age level, dual license and employment commuting effects. Data were collected through postal surveys, internet-based surveys and direct interviews.

### 2.1 Variables

# 2.1.1 Dependent variables

A list of dependent variables and their explanation is presented in Table 1. The first dependent variable, *i.e.* organizational turnover, is derived by comparing respondents' current employment (2008) to employment one year prior (2007). Our second dependent variable, *i.e.* professional turnover, is derived by comparing the respondents' principal nursing position in 2008, at the time of the survey, to the principal nursing position in 2007, a year before the survey.

### 2.1.2 Independent variables

Independent variables were derived from a single question that asked RNs to mark their primary reason(s) for employment change from a list of options. The question was: "Were any of the following the primary reason(s) for your employment change?" The following response options were provided: burnout, stress, physical demands, disability, illness, lack of good leadership, lack of collaboration, scheduling

issues, inadequate staffing, lack of advancement opportunities, better pay benefits, or other. Each response was entered as either "zero" indicating that this reason for employment change was not relevant to the respondent, or "one" indicat-

ing that this reason was relevant to the respondent's decision to change employment. According to the NSSRN survey instrument, only respondents who derived their income solely from nursing filled this question.

**Table 1.** Dependent variables used in the study

Construct	Measurement	Response categories	Transformations
Organizational turnover	Please indicate your employment status in nursing in 2008 in comparison to the employment status in nursing in 2007.	1 = Same position/same employer as principal nursing position on March 10, 2008 2 = Different position/same employer as current one 3 = Different employer than current one 4 = Different position/employer or not working in 2008	1&2 = zero (labeled as "stayers") 3&4 = one (labeled as "leavers")
Professional turnover	Please indicate your principal nursing position in nursing in 2008, in comparison to the principal nursing position in nursing in 2007, a year before the survey.	1 = Full time RN in 2008/ full time RN in 2007 2 = Full time RN in 2008/ part time RN in 2007 3 = Full time RN in 2008/ Not employed 2007 4 = Part time RN in 2008/ full time RN in 2007 5 = Part time RN in 2008/part time in 2007 6 = Part time RN in 2008/ Not Employed 2007 7 = Not employed 2008/ full time RN in 2007 8 = Not employed 2008/ part time 2007	1-6 = zero (labeled as "stayers") 7&8 = one (labeled as "leavers")

Consistent with Price's turnover model and previous organizational behavior literature on occupational/professional turnover, [15,36] we measured health-related factors using five variables: burnout, stress, physical demands, disability or illness. The social work environment was represented by two variables: leadership and collaboration. The work organizational factors were represented by four variables: scheduling, staffing, advancement opportunities and pay benefits. Job satisfaction was assessed using the question: "How satisfied are you with your principal job or with your most recent job, if you are not working now?", with six response options ranging from highly satisfied to highly dissatisfied.

Finally, the following individual variables were included in our model: age, marital status (categorized as married, widowed, and never married with children or not), level of education (categorized as diploma, associate, bachelor or master in nursing), race/ethnicity (categorized as white, non-Hispanic and others), geographical location (rural or urban) and previous place of work (defined as hospital, outpatient setting, nursing home or other).

### 2.2 Data analysis

The unit of analysis for our study is the RN who either left the organization to work in a different health care setting or left the profession. As a first step, we examined the NSSRN database to identify "leavers" for our analysis and group them in one binary variable with value of "zero" assigned to organizational leavers and the value of "one" to professional leavers. Next, descriptive statistics, such as an examination of central tendencies and dispersion, were used to assess the data distribution and detect potential data anomalies. Then chi-square tests were employed to examine whether RNs who left the organization and RNs who left the profession differed with respect to demographics, education and place of work. Finally, binary logistic regression was employed to examine and compare factors associated with the RNs' decision to leave the profession or an organization. The following equation represents our model:

RN who left an organization or profession = f (burnout, stress, physical demands, disability, illness, lack of good leadership, lack of collaboration, scheduling issues, inadequate staffing, lack of advancement opportunities, better pay benefits, age, marital status, level of education, race/ethnicity, geographical location, and previous place of work)

We have adopted a stepwise approach to our model, by entering only dependent variables, and health-related, social work environment, work organizational and individual factors in the first step. In the second step, we have added the variables that capture job satisfaction and occupational commitment. The statistical software used was SAS, version 9.3.

# 3. RESULTS

The overall survey response rate was 62.4 percent. The descriptive characteristics of the study sample are presented in Table 2. Approximately 14 percent (4,682) of RNs left the profession and 14 percent left their organization (4,114) from a total sample size of 36,646. Both groups were more likely to be White (88.7% and 82.9% respectively) and reside in urban areas (81.6% and 83.7%). Nurses who left the profession were more likely to have bachelors in nursing

(34.7%), whereas the highest proportion of nurses who left the organization had an associate in nursing as their highest educational level (38.6%). Furthermore, the largest group of RNs leaving the profession were working in a nursing home type setting (34.7%) whereas the largest group of respondents leaving the organization were working in an outpatient setting (38.6%). The majority of RNs who left the profes-

sion were widowed/separated with children (54.2%). On the other hand, the largest group of respondents who left their organization were married with no children (46.7%). Finally, RNs below the age of 55 were more likely to leave the organization than the profession. However, after the age of 55, nurses were more likely to leave the profession, which could be associated with U.S. retirement policies.

**Table 2.** Descriptive characteristics of study sample (N = 8,796)

Nurse Characteristics	Varieties	Professional turnover (N = 4,680) Frequency (%)	Organizational turnover (N = 4,116) Frequency (%)	<i>p</i> -value	
	Less than 25	32 (2.7%)	119 (2.7%)		
	25 to 29	108 (4.3%)	413 (9.4%)		
	30 to 34	213 (4.5%)	466 (10.6%)		
	35 to 39	282 (6%)	494 (11.2%)		
	40 to 44	339 (7.2%)	503 (11.4%)	.001	
A	45 to 49	439 (9.4%)	611 (13.8%)		
Age	50 to 54	644 (13.8%)	696 (15.8%)		
	55 to 59	656 (14%)	562 (12.7%)		
	60 to 64	767 (16.4%)	336 (7.6%)		
	65 to 69	701 (15%)	155 (3.5%)		
	70 to 74	311 (6.7%)	37 (1.3%)		
	75 and higher				
TT 1 .1 1 C	Diploma in nursing	1094 (23.4%)	447 (10.1%)	.001	
Highest level of	Associates in nursing	1264 (27%)	1703 (38.6%)		
education in nursing	Bachelor's in nursing	1695 (34.7%)	1591 (36%)		
	Master's or Doctorate in nursing	688 (14.9%)	666 (15.3%)		
Daga/Ethnicity	White, non-Hispanic	4151 (88.7%)	3660 (82.9%)	.001	
Race/Ethnicity	Other	531 (11.3%)	754 (17.1%)		
	Married with children	1150 (24.5%)	1390 (31.5%)		
	Married & no children	678 (14.5%)	1618 (46.7%)		
Marital status	Widowed, separated with children	2541 (54.2%)	657 (14.9%)	.001	
	Widowed, separated & no children	93 (0.2%)	270 (2%)		
	Never married with children	825 (4.6%)	67 (0.8%)		
	Never married & no children	276 (2%)	446 (4.1%)		
Location	Rural	857 (18.4%)	670 (16.3%)	001	
	Urban	3823 (81.6%)	3444 (83.7)	.001	
	Hospital	1080 (23%)	440 (10%)		
Place of work	Outpatient setting	1278 (27.6%)	1710 (38.6%)	.01	
	Nursing home type setting	1695 (34.7%)	1591 (36%)		
	Other	688 (14.7%)	666 (15.4%)		

The results of the binary logistic regression are presented in Table 3. RNs who reported disability (OR = 14.51; p-value: < .001) or illness (OR = 3.32; p-value: < .001), or who experienced high physical demands (OR = 1.57; p-value: < .001) or burnout (OR = 1.39; p-value: < .001), were more likely to leave the profession. RNs who were dissatisfied with their schedules (OR = 2.16; p-value: < .001) and staffing (OR = 1.41; p-value: < .001) were more likely to leave the

profession; whereas RNs who reported high levels of stress (OR = 0.59; p-value: < .001), were dissatisfied with the organization's leadership (OR = 0.22; p-value: < .001) or advancement opportunity (OR = 0.56; p-value: < .001) or compensation (OR = 0.63; p-value: < .001) were more likely to leave the organization. Finally, nurses who were moderately satisfied with their most recent job (OR = 0.79; p-value: < .01) were less likely to leave the profession than nurses

who were extremely dissatisfied with their most recent job.

**Table 3.** Reasons for leaving the organization versus the profession: adjusted odds ratios (N = 8,796)

Reasons for leaving         Ratio         Confidence Interval           Burnout         1.39***         1.12 - 1.72           Stress         .59***         0.49 - 0.72           Disability         14.51***         9.05 - 23.27           Illness         3.32***         2.16 - 5.10           Physical         1.57***         1.24 - 1.99           Leadership         .22***         0.17 - 0.27           Collaboration         1.12***         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         .94         0.67 - 1.32           Moderately satisfied         .94         0.67 - 1.32           Moderately satisfied or dissatisfied         .90         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.34           Married with children         2.85***         2.15 - 3.77           Married with children		Odds	95%
Burnout         1.39***         1.12 - 1.72           Stress         .59***         0.49 - 0.72           Disability         14.51***         9.05 - 23.27           Illness         3.32***         2.16 - 5.10           Physical         1.57***         1.24 - 1.99           Leadership         .22***         0.17 - 0.27           Collaboration         1.12***         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63****         0.53 - 0.75           Job Satisfaction         ****         0.57 - 0.75           Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied or dissatisfied         .90         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Maried with children         2.85***         2.15 - 3.77           Married with children         1.28         0.97 - 1.69           Widowed, separated with children	Reasons for leaving		
Stress         .59***         0.49 - 0.72           Disability         14.51***         9.05 - 23.27           Illness         3.32***         2.16 - 5.10           Physical         1.57***         1.24 - 1.99           Leadership         .22***         0.17 - 0.27           Collaboration         1.12***         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .56***         0.53 - 0.75           Job Satisfaction         ***         0.56 - 1.00           Neither satisfied         .94         0.67 - 1.32           Moderately satisfied         .99         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.32           Married with children         2.85****         2.15 - 3.77           Married with children         2.85****         2.15 - 3.77           Married with children         8.8         0.58 - 1.34           Widowed, separated & no children			
Disability   14.51***   9.05 - 23.27   Illness   3.32***   2.16 - 5.10   Physical   1.57***   1.24 - 1.99   Leadership   2.22***   0.17 - 0.27   Collaboration   1.12***   0.86 - 1.45   Scheduling   2.16***   1.80 - 2.60   Staffing   1.41***   1.13 - 1.75   Opportunity   5.6***   0.43 - 0.73   Salary   0.53**   0.53 - 0.75   Job Satisfaction   Extremely satisfied   994   0.67 - 1.32   Moderately satisfied   994   0.67 - 1.32   Moderately satisfied   990   0.61 - 1.32   Moderately dissatisfied   991   0.62 - 1.33   Extremely dissatisfied   991   0.62 - 1.33   Extremely dissatisfied   81.68***   1.62 - 1.74   Kinship responsibility   Married with children   2.85***   2.15 - 3.77   Married with children   2.85***   2.15 - 3.77   Married & no children   1.28   0.97 - 1.69   Widowed, separated & no children   88   0.58 - 1.34   Widowed, separated & no children   98   0.41 - 2.33   Never married & no children   98   0.41 - 2.33   Never married & no children   8eference   Reference   Highest level of education   1.60***   1.28 - 2.01   Associates in vs. Master's or Doctorate   1.60***   1.28 - 2.01   Associates in vs. Master's or Doctorate   1.60***   1.28 - 2.01   Associates in vs. Master's or Doctorate   1.60***   1.13 - 1.63   Race (non-White-reference category)   1.19***   1.14 - 1.64   Location (rural-reference category)   1.19***   1.34 - 3.45   Place of work   1.45***   0.98 - 4.56			
Illness   3.32***   2.16 - 5.10     Physical   1.57***   1.24 - 1.99     Leadership   .22***   0.17 - 0.27     Collaboration   1.12***   0.86 - 1.45     Scheduling   2.16***   1.80 - 2.60     Staffing   1.41***   1.13 - 1.75     Opportunity   .56***   0.43 - 0.73     Salary   .63***   0.53 - 0.75     Job Satisfaction	Stress		
Physical         1.57***         1.24 - 1.99           Leadership         .22***         0.17 - 0.27           Collaboration         1.12****         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41****         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         ***         0.56 - 1.00           Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied         .90         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Married with children         2.85****         2.15 - 3.77           Married with children         2.85****         2.15 - 3.77           Married with children         .88         0.58 - 1.34           Widowed, separated with children         .88         0.58 - 1.34           Widowed, separated & no children         .62****         0.45 - 0.85           Never married with children         .98         0.41 - 2.33           Never married & no children         Reference         Reference	Disability		9.05 - 23.27
Leadership         .22***         0.17 - 0.27           Collaboration         1.12***         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied         .99         0.61 - 1.32           Moderately dissatisfied or dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.34           Mage         1.68***         1.62 - 1.74           Kinship responsibility         .215 - 3.77           Married with children         .88         0.58 - 1.34           Widowed, separated with children         .88         0.58 - 1.34           Widowed, separated & no children         .92         0.41 - 2.33 </td <td>Illness</td> <td></td> <td>2.16 - 5.10</td>	Illness		2.16 - 5.10
Collaboration         1.12***         0.86 - 1.45           Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         ***         0.56 - 1.00           Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied         .90         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         .91         0.62 - 1.33           Widowed, separated with children         .88         0.58 - 1.34	Physical		1.24 - 1.99
Scheduling         2.16***         1.80 - 2.60           Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied         .99         0.61 - 1.32           Moderately dissatisfied on dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied Reference         Reference           Age         1.68***         1.62 - 1.74           Kinship responsibility         Inceptual on the children on th	Leadership		0.17 - 0.27
Staffing         1.41***         1.13 - 1.75           Opportunity         .56***         0.43 - 0.73           Salary         .63***         0.53 - 0.75           Job Satisfaction         Extremely satisfied         .94         0.67 - 1.32           Moderately satisfied         .79*         0.56 - 1.00           Neither satisfied nor dissatisfied         .90         0.61 - 1.32           Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         Reference           Age         1.68***         1.62 - 1.74           Kinship responsibility         Warried with children         2.85***         2.15 - 3.77           Married with children         2.85***         2.15 - 3.77           Married & no children         .88         0.58 - 1.34           Widowed, separated with children         .88         0.58 - 1.34           Widowed, separated & no children         .62****         0.45 - 0.85           Never married with children         .98         0.41 - 2.33           Never married & no children         Reference         Reference           Highest level of education         1.60****         0.57 - 0.82           Bachelor's vs. Master's or Doctorate         1.68****         0.57 - 0.82 <td>Collaboration</td> <td>1.12***</td> <td>0.86 - 1.45</td>	Collaboration	1.12***	0.86 - 1.45
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Moderately dissatisfied         .91         0.62 - 1.33           Extremely dissatisfied         Reference           Age         1.68***         1.62 - 1.74           Kinship responsibility         Warried with children         2.85***         2.15 - 3.77           Married & no children         1.28         0.97 - 1.69           Widowed, separated with children         .88         0.58 - 1.34           Widowed, separated & no children         .62****         0.45 - 0.85           Never married with children         .98         0.41 - 2.33           Never married & no children         Reference         Reference           Highest level of education         3.60****         0.57 - 0.82           Diploma in vs. Master's or Doctorate         1.60****         1.28 - 2.01           Associates in vs. Master's or Doctorate         1.68****         0.57 - 0.82           Bachelor's vs. Master's or Doctorate         1.37***         1.13 - 1.63           Race (non-White-reference category)         1.19***         1.14 - 1.64           Location (rural-reference category)         2.56**         1.34 - 3.45           Place of work         4         0.98 - 4.56           Outpatient setting         .88         0.67 - 1.34	Moderately satisfied	.79*	0.56 - 1.00
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Widowed, separated & no children  Never married with children  Never married & no children  Reference  Highest level of education  Diploma in vs. Master's or Doctorate  Associates in vs. Master's or Doctorate  Bachelor's vs. Master's or Doctorate  Associates in vs. Master's or Doctorate  Bachelor's vs. Master's or Doctorate  1.37***  1.13 - 1.63  Race (non-White-reference category)  Location (rural-reference category)  Place of work  Hospital  Outpatient setting  1.45***  0.45 - 0.85  Reference  Reference  1.60***  1.28 - 2.01  1.37***  1.13 - 1.63  1.13 - 1.63  Race (non-White-reference category)  1.19***  1.14 - 1.64  1.45 ***  0.98 - 4.56	Married & no children	1.28	0.97 - 1.69
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Never married & no children  Highest level of education  Diploma in vs. Master's or Doctorate Associates in vs. Master's or Doctorate Bachelor's vs. Master's o	Widowed, separated & no children	.62***	0.45 - 0.85
Highest level of education         Diploma in vs. Master's or Doctorate       1.60***       1.28 - 2.01         Associates in vs. Master's or Doctorate       .68***       0.57 - 0.82         Bachelor's vs. Master's or Doctorate       1.37***       1.13 - 1.63         Race (non-White-reference category)       1.19***       1.14 - 1.64         Location (rural-reference category)       2.56**       1.34 - 3.45         Place of work         Hospital       1.45***       0.98 - 4.56         Outpatient setting       .88       0.67 - 1.34	Never married with children	.98	0.41 - 2.33
Diploma in vs. Master's or Doctorate       1.60***       1.28 - 2.01         Associates in vs. Master's or Doctorate       .68***       0.57 - 0.82         Bachelor's vs. Master's or Doctorate       1.37***       1.13 - 1.63         Race (non-White-reference category)       1.19***       1.14 - 1.64         Location (rural-reference category)       2.56**       1.34 - 3.45         Place of work         Hospital       1.45***       0.98 - 4.56         Outpatient setting       .88       0.67 - 1.34	Never married & no children	Reference	Reference
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Bachelor's vs. Master's or Doctorate $1.37^{***}$ $1.13 - 1.63$ Race (non-White-reference category) $1.19^{***}$ $1.14 - 1.64$ Location (rural-reference category) $2.56^{**}$ $1.34 - 3.45$ Place of workHospital $1.45^{***}$ $0.98 - 4.56$ Outpatient setting $.88$ $0.67 - 1.34$	Diploma in vs. Master's or Doctorate	1.60***	1.28 - 2.01
Race (non-White-reference category) $1.19^{***}$ $1.14 - 1.64$ Location (rural-reference category) $2.56^{**}$ $1.34 - 3.45$ Place of workHospital $1.45^{***}$ $0.98 - 4.56$ Outpatient setting $.88$ $0.67 - 1.34$	Associates in vs. Master's or Doctorate	.68***	0.57 - 0.82
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Place of work           Hospital         1.45***         0.98 - 4.56           Outpatient setting         .88         0.67 - 1.34	Race (non-White-reference category)	1.19***	1.14 - 1.64
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	Outpatient setting	.88	0.67 - 1.34
Nursing home type setting .65 0.34 - 1.45	Nursing home type setting	.65	0.34 - 1.45
Other Reference Reference	Other	Reference	Reference

p < .1; p < .05; p < .001

Several individual characteristics were associated with RNs' organizational or professional turnover. Specifically, older nurses (OR = 1.68; p-value: < .001) and nurses who were married with children (OR = 2.85; p-value: < .001) were more likely to leave the profession than nurses who never married and had no children. Conversely, nurses who were widowed with children (OR = 0.62; p-value: < .001) were more likely to leave the organization than nurses who never

married and had no children. Nurses with a diploma (OR = 1.60; p-value: < .001) or a bachelor's degree in nursing (OR = 1.37; p-value: < .001) were more likely to leave the profession than nurses with a master's or doctorate degree in nursing. RNs located in urban areas (OR = 2.56; p-value: < .05) and previously employed in the hospitals (OR = 1.45; p-value: < .001) were more likely to leave the profession.

# 4. DISCUSSION

Given the increasing nurse turnover rates, [1,37] it is important to understand why RNs are leaving health care organizations or the profession altogether. This study's analysis indicates that health-related factors such as reported disability or illness due to the work-related injuries, and high physical demands were associated with RNs' decision to leave the profession. The rates of work-related illnesses, such as musculoskeletal injury, increased by 52% and 62% respectively between 1980 and 1993 and this is still one of the leading causes of work-related disabilities.<sup>[38]</sup> Research has shown that work-related injuries are predominantly caused by situational factors, such as staffing levels, availability of lifting devices, consistently heavy workload (e.g. 12 hour shifts) and high levels of stress. [38,39] The findings in this study highlight the need for customized organizational approach that could address potentially unsafe staffing levels, reduce the workload for individual nurses, and streamline scheduling requirements in each facility.

Corroborating previous research, our study revealed that nurses were more likely to leave an organization if they reported high levels of stress or were dissatisfied with the organization's leadership, their advancement opportunity, and/or their compensation.<sup>[11]</sup> Therefore, health care managers should develop and implement setting-specific career enhancement programs for RNs that would adequately reflect their needs. Some of the suggested areas for increasing the engagement of nurses are quality improvement methodology and leadership training, as identified by previous research.<sup>[40]</sup> Additionally, health care managers should consider adopting a supportive leadership style that will increase the retention of nurses. Currently this is used in less than 10% of nurse workplaces.<sup>[29]</sup>

Several personal characteristics were shown to be associated with organizational and professional turnover. Contrary to the previous research, this study shows that older nurses are more likely to leave the profession. [9,41] The results pointed out that despite an organizational commitment, older nurses can be considered a "high risk" group with respect to the likelihood of leaving the nursing field altogether. Older nurses have extensive experience in care delivery process; thus, cohort-specific initiatives that would increase the re-

tention of this group should be developed. These initiatives include an assessment of the needs and satisfaction levels of mid-career nurses, an improvement to ergonomic equipment and design in the workplace, education to facilitate transition into new roles, expanding or carving out new roles for older nurses, phased retirement options, and injury-prevention programs. These initiatives may also motivate younger nurses and help organizations to meet their occupational safety requirements. [42–44]

Kinship responsibilities (*e.g.* being married with children) were associated with organizational and professional turnover in different ways. RNs who are married with children or widowed with children are more likely to leave the profession than never-married nurses without children. This difference could be explained by a higher need for workhome balance among married RNs,<sup>[15]</sup> or conversely, as explained in other industry turnover literature, it may be true that married people are more likely to be able to leave the profession and stay at home due to spousal income support.<sup>[45]</sup> There are several existing programs within the industry which have already successfully improved family-work balance, such as offering flexible schedule, career breaks or the provision of special leave for employees with elder care responsibilities.<sup>[45]</sup>

Finally, this study found that RNs who worked in urban areas or in hospitals were more likely to leave the profession rather than organization. This may be explained by the fact that RNs located in urban areas have more job opportunities and may be more likely to choose different occupations if they are dissatisfied.<sup>[15]</sup> Therefore, management in urban settings needs to pay additional attention to the development of strategies that include training, better schedules, more organizational engagement activities, incentives and award structures.

### Limitations

This study has both strengths and limitations worth noting. It is the first study to analyze the differences between organizational and professional turnover using a nationally representative sample of RNs practicing in the U.S.. Unlike the majority of nurse turnover research, this study was able to examine predictors of turnover among RNs who already left an organization or profession rather than simply stating their intention to leave. Thus, the analysis reflects the actual "turnover process" better than previous research. Despite these strengths, this study is limited in several ways. Although this study is based on a representative dataset, the information about reasons for turnover was obtained from subjective self-reported data by RNs who had left the orga-

nization or the profession. Therefore, our results may suffer from "memorability" bias, [46] for example nurses may report different reasons for leaving an organization than they actually had at the time of departure. Although the vast majority of research in this field has relied on self-reported data obtained from individual nurses, future research should consider collecting this type of information directly at the time of the nurse's departure in order to obtain more accurate information. Given the analytical approach of this study, e.g. focusing only on "leavers", it is not possible to directly compare our findings with previous research that is based on data from nurses still working in the profession and those who left it. Furthermore, the dataset limits our ability to consider other factors that may influence RN's decision to leave the profession including unemployment rate, recession, availability of other jobs in the market, and government policies, e.g. Affordable Care Act. [47] that may affect the job market. Finally, due to the cross-sectional nature of the data, the identified relationships can be interpreted as associations only. Thus, subsequent studies should consider adopting longitudinal designs to shed a light on "causal" relationships between predictors of organizational and professional turnover and actual turnover among RNs.

# 5. CONCLUSIONS

Our study revealed that different sets of factors are associated with organizational and professional turnover among RNs who practice in the U.S.. This knowledge is important for health care managers due to the fact that higher RN turnover is known to be associated with organizational shortages, absenteeism and lower morale of remaining staff. Thus, health care organizations that are interested in attracting and retaining RNs in their institution should consider introducing participative leadership and comprehensive career development programs. Health care administrators should also consider designing and implementing customized nurse staffing requirements to address occupational safety in a given facility. Furthermore, health care managers should be concerned about the factors that are associated with RNs' decision to leave the profession due to the shrinking size of the active RN workforce and looming nursing shortages. Finally, policy makers should consider allocating additional resources to ensure that RN workforce is of adequate size, is qualified, and is able to provide high quality care by addressing factors that were shown to be associated with RN's decision to leave the workforce. By carefully understanding predictors of organizational and professional turnover among RNs, health care managers and policy makers can better tailor strategic initiatives to maximize RNs retention in the workforce.

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