

# THE DETERMINANTS OF TURNOVER OF NURSE PRACTITIONERS IN THE UNITED STATES

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## ABSTRACT

Our study examined the determinants of turnover of nurse practitioners using the 2012 National Sample Survey of Nurse Practitioners. Turnover of skilled employees is expensive and threatens the quality of medical care. Factor analysis produced four underlying latent common satisfaction factors: patient workload, professional treatment, organizational administration, and work hours. These were included in a logistic regression model of turnover intentions with several control variables. We found that an increase in each of the four satisfaction factors results in a decrease in turnover intentions. Based on our results, we propose managerial interventions that would decrease turnover of nurse practitioners.

Keywords: nurse practitioner, turnover, job satisfaction

## INTRODUCTION

Nurse practitioners play a critical role in providing medical care and turnover of highly trained professionals is expensive because they are difficult to replace. Thus, turnover is a concern to healthcare organizations as they struggle to develop and maintain sufficient employee expertise to sustain the quality of patient care. Turnover also impacts private third-party payers, government programs, and the well-being of society as a whole. The cost of turnover includes recruiting, selection, and training costs to hire replacements for nurse practitioners who quit. Additional turnover costs include the costs of temporary replacement nurses (who cost more per hour than staff nurses), or paying overtime to staff nurses. Turnover can also result in lost revenue if medical units are closed or under-utilized due to lack of staff. Furthermore, burnout caused by increased workloads due to turnover can result in lost productivity, decreased quality of patient care, and lower productivity of new hires [6] [7] [14]. These concerns will impact consumers of healthcare, payers for healthcare (both private third party and government), and society as a whole because employers pass these turnover costs on to payers and to society.

Research reports that the "... average cost of replacing an experienced RN at \$62,000 to \$67,000" [8, p. 2]. The BLS reported that the median starting salary for registered nurses in the US was \$68,450 per year [3]. Note that the estimated average cost of replacing an experienced registered nurse is roughly 100% of the median annual starting salary. Nurse practitioners are advanced registered nurses educated and trained to provide health promotion and maintenance through the diagnosis and treatment of acute illness and chronic conditions who is qualified to treat certain medical conditions without the direct supervision of a doctor. Nurse practitioners median salary is higher than that of registered nurses; in our data, the average salary was \$88,200, which suggests that the cost of replacing nurse practitioners would be higher than that for replacing registered nurses. Therefore, understanding the determinants of turnover of nurse

practitioners is important if employers are to undertake making changes to the workplace and to the treatment of nurse practitioners to reduce turnover, reduce costs, and improve the quality of medical care patients receive.

Studies of employee turnover frequently focus on turnover intentions rather than actual employee turnover because actual turnover is predicted by turnover intentions [11], and because studying turnover intentions allows managers to understand what they can do to influence turnover intentions before employees actually quit their jobs. Turnover intention has been defined as “the last in a sequence of withdrawal cognitions, a set to which thinking of quitting and intent to search for alternative employment also belongs” [16, p. 262].

A primary determinant of turnover intentions in the literature is job satisfaction. Job satisfaction has been defined as “the pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating the achievement of one’s job values” [9, p. 316]. Previous research has found that nurse job satisfaction is associated with job characteristics such as: nurse participation in hospital affairs nurse-physician relations, and patient workload [2] [12]. Research concluded that job characteristics are more important in predicting job satisfaction than individual nurse demographic characteristics [1]. Thus, we hypothesize that higher levels of satisfaction with job characteristics will be associated with reduced turnover intentions.

## **METHODS**

The data we analyzed was the 2012 National Sample Survey of Nurse Practitioners [5]. It is a national stratified random sample of Nurse Practitioners (NPs); it included detailed information on licensure, education, clinical practice characteristics, and demographics. The study was conducted by the Health Resources and Services Administration (HRSA) and resulted in a representative sample by using listings of all actively licensed NPs from each state licensing board, weighted proportionally by the size of the state. This resulted in a total of 12,923 surveys completed by NPs, for a response rate of 60.1%. More information, and the data itself, can be found at Health Resources and Services Administration [5]. Our sample for analysis was 6,720 NPs after excluding those NPs currently not working as an NP, those who reported being undecided about turnover intentions, and those with missing values for variables necessary for analysis.

The first step in our analyses was to perform a factor analysis on the thirteen satisfaction questions included in the survey. We used factor analysis because all 13 satisfaction variables are too highly correlated to use them all in any one equation because of the resulting multicollinearity, which would result in not being able to accurately separate the effects of each satisfaction variable on turnover. More importantly, the high correlations suggest that the 13 satisfaction factors are not measuring independent satisfaction constructs, but instead measure a smaller number of latent constructs. The results of the factor analysis would provide a smaller number of latent constructs with improved reliability of measurement [4] [10].

Analyses were done using SAS software, Version 9.3 [15]. Estimates were maximum likelihood method with varimax rotation. The eigenvalues (characteristic roots) from the correlation matrix of the 13 satisfaction variables were examined to see how many latent constructs had eigenvalues larger than one; there were four—i.e., four common factors existed. The factors are listed in Table 1 with the factor names suggested by the variables included in each factor and the satisfaction questions (variables) that were included in each factor. These four satisfaction factors are subsequently used in logistic regression to

identify the significant predictors of turnover intention. The measure of internal consistency or reliability, Cronbach's alpha, are listed in Table 1. Results of Cronbach's alpha were 0.77 for patient workload Factor1, 0.87 for Professional Treatment Factor2, and 0.79 for patient workload Factor3. These are all within the acceptable range for Cronbach's alpha, which, according to Nunally [12, p. 245-246) should be 0.70 or higher. Cronbach's alpha could not be computed for the fourth factor because it has only one variable.

**Table 1: Factor Analysis of Satisfaction Variables**

<b>F1 Satisfaction with patient workload; Cronbach's a = 0.77</b>
Satisfaction with the proportion of time in patient care
Satisfaction with patient load
Satisfaction with patient mix
Satisfaction with the amount of paperwork required
<b>F2 Satisfaction with professional treatment; Cronbach's a = 0.81</b>
Satisfaction with the sense of value for what you do
Satisfaction with respect from physician colleagues
Satisfaction with respect from other colleagues
Satisfaction with level of autonomy
<b>F3 Satisfaction with organizational administration; Cronbach's a = 0.79</b>
Satisfaction with amount of administrative support
Satisfaction with opportunities for professional development
Satisfaction with input into organizational/practice policies
Satisfaction with the salary/benefits
<b>F4 = Satisfaction with work hours</b>
Satisfaction with the number of hours worked, including overtime

Logistic regression, using SAS 9.3, was used to identify the significant predictors of NPs turnover intention. The survey questions respondents answered was "Do you plan to leave your principal position?" with the possible responses: Yes, will leave in 2012; Yes, will leave in 1-2 years; No plans to leave in next 2 years; Undecided. We included "leave in 2012" and "leave in 1-2 years" as having a turnover intention of yes. We included only "No plans to leave in next 2 years" as having a turnover intention of no. We excluded those who responded "Undecided" from the analysis. The logistic model has an R-square of 0.1710 and a max rescaled R square of 0.2803. The model correctly predicts 80.2% of turnover intentions, 19.5% of turnover intentions incorrectly, and 0.3% tied.

## RESULTS

As Table 2 shows, all of the satisfaction factors in our model have the hypothesized signs and achieve statistical significance at the five percent one-tail level. In addition, the control variables achieve statistical significance at the .05 level with effects in the plausible direction. The results show that increases in satisfaction with patient workload, satisfaction with professional treatment, satisfaction with organizational administration, and satisfaction with work hours are each associated with reductions in nurse practitioner turnover intentions. Those who are within five years of retirement have lower turnover

intentions; on the other hand, those planning on retiring in six to ten years or in more than ten years have higher turnover intentions. Nurse practitioners who have a second job have lower turnover intentions. Those who work in the internal medicine specialty have higher turnover intentions. If a Medical Doctor is onsite more than 50% of the time, then nurse practitioners have higher turnover intentions. Those who are paid hourly have lower turnover intentions. Nurse practitioners who are married have higher turnover intentions. Nurse practitioners who believe that their skills are fully utilized have lower turnover intentions. Finally, increases in salary are associated with lower turnover intentions.

**Table 2: Logistic Regression of Turnover Intention**

<b>Variable</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>Wald Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Intercept</b>	5.80	0.34	294.83	<.0001
<b>F1 patient workload</b>	-0.15	0.04	18.90	<.0001
<b>F2 professional treatment</b>	-0.18	0.04	27.29	<.0001
<b>F3 organizational administration</b>	-0.46	0.03	204.83	<.0001
<b>F4 hours worked</b>	-0.18	0.07	7.50	0.0062
<b>Plan to retire &lt; 5 yrs</b>	-0.40	0.08	25.97	<.0001
<b>Plan to retire in 6-10 yrs</b>	0.50	0.08	37.21	<.0001
<b>Plan to retire &gt; 10 yrs</b>	0.29	0.07	15.96	<.0001
<b>Second job</b>	-0.15	0.04	13.68	0.0002
<b>Work in internal specialty area</b>	0.13	0.05	6.32	0.0119
<b>MD on site 50% or more</b>	0.10	0.04	6.26	0.0124
<b>Paid hourly</b>	-0.08	0.04	3.83	0.0503
<b>Married</b>	0.21	0.04	28.20	<.0001
<b>Use skills fully</b>	-0.17	0.06	8.81	0.0030
<b>Salary category (\$2,500 increments)</b>	-0.01	0.00	17.60	<.0001

## **CONCLUSIONS**

Our results show that employers of nurse practitioners can reduce turnover intentions by taking actions that increase satisfaction with patient workload, satisfaction with professional treatment, satisfaction with organizational administration, and satisfaction with work hours. Employers can increase satisfaction with patient workload by changing the amount of time nurse practitioners spend in patient care, changing the patient load, changing the patient mix, and changing the amount of required paperwork to better reflect the desires of the nurse practitioners. Satisfaction with professional treatment can be increased by ensuring that nurse practitioners feel valued for their work, have respect from physician colleagues, have respect from other colleagues, and autonomy. Satisfaction with organizational administration can be increased by providing the appropriate amounts of administrative support, opportunities for professional development, input into organizational and practice policies, and compensation. Employers can increase satisfaction with work hours by setting work hours to better match the expectations of nurse practitioners.

Employers can also reduce the turnover intentions by paying nurse practitioners for the hours that they work, by increasing pay, and by taking steps to ensure that nurse practitioners feel that their skills are being fully utilized. In addition, employers can reduce turnover intentions by examining the amount of time medical doctors are present while nurse practitioners are providing patient care. While retirement plans, having a second job, and being married are significant determinants of turnover intentions, employers do not have control over those variables. We recommend that future researchers and employers examine why nurse practitioners in the internal medicine specialty practices have higher turnover intentions. Our findings provide many options for managerial interventions that can significantly reduce the turnover of nurse practitioners, and thus reduce healthcare costs and improve the quality of patient care.

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