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Factors That Affect Turnover Intention of Registered Nurses in the Acute Hospital: A Meta-Analysis from 2006-2016

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ABSTRACT

FACTORS THAT AFFECT TURNOVER INTENTION OF
REGISTERED NURSES IN THE ACUTE HOSPITAL:
A META-ANALYSIS FROM 2006-2016

Multiple complex variables influence nurse turnover. This meta-analysis examines the strength of the relationships between factors that affect turnover intent among staff registered nurses employed in the acute hospital setting in the United States. The Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) was used to guide the reporting of essential components of this study. Included studies were published in English between 2006-2016, reported study sample sizes, a Cronbach coefficient for the study instruments, conducted quantitative analysis and reported Pearson correlation r values. Two factors affecting turnover intention were found in the four included studies. Statistical analyses show that both organizational commitment and structural empowerment have a negative correlation with anticipated turnover. The strength of the relationship between organizational commitment and anticipated turnover is moderate (-.298). Similarly, there is a moderate (-.346) strength of the relationship between structural empowerment and anticipated turnover. The strict inclusion criteria resulted in a low number of primary studies for meta-analysis, but confirm prior knowledge. This contribution to increasing understanding of turnover intent will allow a focused approach for training and retention strategies which can be referenced when addressing issues related to nurse turnover.

Helen Pagilagan
May 2017

FACTORS THAT AFFECT TURNOVER INTENTION OF

REGISTERED NURSES IN THE ACUTE HOSPITAL:

A META-ANALYSIS FROM 2006-2016

by

Helen Pagilagan

A project

submitted in partial

fulfillment of the requirements for the degree of

Doctor of Nursing Practice

California State University, Northern Consortium

Doctor of Nursing Practice

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APPROVED

For the California State University, Northern Consortium
Doctor of Nursing Practice:

We, the undersigned, certify that the project of the following student
meets the required standards of scholarship, format, and style of the
university and the student's graduate degree program for the
awarding of the master's degree.

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CHAPTER 1: INTRODUCTION

Registered nurse turnover has been a consistent and significant area of focus in the last 40 years due to its impact, chronic occurrence, and complexity of causal factors (Gilmartin, 2013; Hayes, et al., 2011). More than 40% of hospital nurses are dissatisfied with their jobs, with voluntary nurse turnover at approximately 21%. (Gilmartin, 2013).

Turnover is costly to the organization, the payers and ultimately to the patients, with expenses incurred through hiring and orientation of new nurses, diminished productivity, and the use of temporary replacement nurses (Kovner et al., 2009). The replacement cost of a nurse is estimated at $82,000-$88,000, adding up to $5.9 million to $6.4 million annually for a large acute care hospital (Jones, 2008). Turnover affects staff productivity and morale (Cavanagh & Coffin, 1992), and nurses' perception of their work environment affects their perception of the quality of care (Gormley 2011).

This study is a meta-analysis of primary research from the last ten years on factors affecting nurse turnover in the acute hospital setting in the United States. Meta-analysis uses statistical methods for combining, summarizing and analyzing the results of multiple independent studies (Liberati et al., 2009) to obtain the strongest correlations between variables (Nei, Snyder & Litwiller, 2015). The meta-analytic approach offers an advantage over narrative research reviews because of its systematic integration of results from descriptive research studies (Reynolds, Timmerman, Anderson, & Stevenson, 1992). This meta-analysis was conducted and reported following the 27 items from the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

Background and Significance of the Study

Healthcare is projected to be the fastest growing field through 2020, with nurse retention as a focus (Nei et al., 2015). Registered nurse employment is anticipated to grow 16% from 2014 to 2024 due to the importance of preventive care, increasing chronic health illnesses, and healthcare needs from the aging population (Bureau of Labor and Statistics, 2017). An understanding of the most current reasons for nurses leaving their employment can assist in targeting interventions to increase workforce retention (Chan et al., 2012).

Statement of the Problem

Turnover is expensive (Kovner et al., 2009; Jones, 2008), and affects productivity and morale (Cavanagh & Coffin, 1992). In addition, turnover affects patient outcomes, with prior studies demonstrating the relationship between the number of years of nurse experience and the quality of care measured through the rates of hospital-acquired pressure ulcers and patient falls (Dunton, Gajewski, Klaus, & Pierson, 2007). However, while there has been sustained interest and voluminous research, the causes of nurse turnover are still not well understood (Gilmartin, 2013).

Purpose and Research Question

The purpose of this study is to quantitatively synthesize finding across studies of nursing turnover over the last ten years. The meta-analysis examined the strength of relationships between factors that affect turnover intent or anticipated turnover for acute hospital nurses in the United States, adding to existing literature for this population. The research question in this study is what factors have the strongest relationship with turnover intent of acute hospital nurses in the United States in the last ten years.

Updates to meta-analysis are usually cumulative, including new study findings in prior meta-analysis (Zangaro & Soeken, 2007). This meta-analysis specifically includes only studies of hospital nurses in the United States from 2006-2016 since there are differences in the work environment of nurses between facilities, clinical practice, responsibilities, payer sources and reimbursement models that may affect nurse turnover.

CHAPTER 2: LITERATURE REVIEW

Factors affecting turnover within various fields of nursing practice have generated widespread interest, evidenced by the number of studies on nurse retention. This section examines key studies illuminating select variables with the strongest correlations to turnover, and previous meta-analytic studies on staff nurse turnover.

Variables Related to Nurse Turnover

Nei (2011) summarized previous research into six broad categories with 54 variables that affect nurse turnover: personal characteristics, role states, job characteristics, group/leader relations, organizational/environmental perceptions, and attitudinal reactions.

Personal Characteristics and Role States

Beecroft, Dorey, and Wenten (2008) conducted a multivariate analysis of turnover intention in 889 new pediatric nurses who completed a residency program. The study examined the relationship of individual characteristics, work environment variables and organizational factors with intent to leave. Other studies have examined the possible effects of age, education, extraversion, and marital status on nurse retention. As for role states, various research describe nurses' experience or perception of job strain, role tension, and work-family conflict (Nei 2011).

Job Characteristics

Job characteristics that may influence turnover or retention rates include full time or part time status, perceptions of job control or autonomy, job level,

salary, work schedule, procedural justice and measures of job stress levels (Nei, 2011).

Group/leader Relations

Studies of the influence of individual and collective relationships affecting nurse turnover include bullying, co-worker's intent to leave, leadership and team cohesiveness (Nei, 2011). A survey of 433 nurses in the United Kingdom National Health Services assessed a conceptual model that links leader-member exchange, perceived organizational support, affective commitment and intent to leave (Robson & Robson, 2016). Affective commitment describes a worker's emotional attachment to an organization (Allen & Meyer, 1990). Both leader-member exchange and perceived organizational commitment showed a direct positive relationship with affective commitment and an adverse effect on intent to leave (Robson & Robson, 2016). Affective commitment has a statistically significant negative correlation with intent to leave; furthermore, it mediated the relationship between leader-member exchange and perceived organizational commitment and intent to leave (Robson & Robson, 2016). This study points to the role of the manager in motivating staff and the requirement for organizational support to further enhance nurse's affective commitment to the job (Robson & Robson, 2016).

Organizational Perceptions

Nei's (2011) classification of studies with factors related to organizational understanding or perception included organizational climate and size, patient aggression levels, nurses' perception of other job alternatives, the Person-Organization fit, perceived organizational support, staffing shortages, and socialization tactics.

Hauck, Quinn Griffin, and Joyce (2011) used a descriptive correlational study design to study nurses' perceptions of structural empowerment and anticipated turnover for 257 critical care registered nurses in five different units in a tertiary university hospital in the northeastern United States. The researchers used background data, the Conditions of Work Effectiveness questionnaire-II (CWEQ-II) and the Anticipated Turnover Scale (ATS). The CWEQ-II measures the structural empowerment elements of access to opportunity, information, support, and resources, as well as informal and formal power (Laschinger & Finegan, 2005). The ATS measures perceptions regarding leaving a current job voluntarily (Hinshaw, Atwood, Gerber, & Erickson, 1985). Hauck et al. (2011) found that the nurses in their sample felt moderately empowered, with higher structural empowerment scores indicating lower anticipated turnover scores.

Smith, Capitulo, Griffin, and Fitpatrick (2012) conducted a descriptive, cross-sectional design pilot study to examine the relationship between structural empowerment and anticipated turnover in 50 behavioral health nurses in five inpatient psychiatric and psychiatric emergency service units in a public hospital system in Massachusetts. Results confirmed other studies on empowerment and anticipated turnover, with the study sample showing a significant negative correlation between structural empowerment using the CWEQ-II scale and the anticipated turnover measured by the ATS (Smith et al., 2012).

Attitudinal Reactions

Blegen (1993) created a turnover model based on multiple stages that include attitudinal, decisional and behavioral processes. The attitudinal aspect included job satisfaction (Blegen, 1993). Other researchers have measured

extrinsic and intrinsic motivation, job involvement, organizational commitment as factors classified under this category of attitudinal reactions (Nei, 2011).

Previous Meta-analysis of Nurse Turnover

Job satisfaction in frontline registered nurses is directly tied to retention, organizational commitment, workforce and patient safety, and healthcare costs (Saber 2014). A review of the literature showed that meta-analytic studies from 1993 to 2014 spanning several decades of nursing research initially focused on variables affecting job satisfaction and then connected the findings to nursing turnover. The most recent meta-analysis, however, conducted in 2015 by Nei, Snyder, and Litwiller, directly examined nurse turnover and its determinants.

Job Satisfaction and Job Stress

Blegen (1993) performed the earliest meta-analytic studies of variables related to nurse's job satisfaction. This study reviewed data from 48 studies until 1991 and showed that job satisfaction was most closely related to job stress and moderately correlated with communication with supervisor, autonomy, and communication with peers.

Job Satisfaction and Job Stress, Nurse-Physician Collaboration and Autonomy

Zangaro and Soeken's (2007) meta-analysis of 31 descriptive correlational studies of registered nurses published in English between 1991-2003 sought to identify the relationships between job satisfaction and other variables. These studies included a total of 14,567 staff nurse participants. Demographic information was available in 17 of the studies, representing 5,040 nurses, indicating a 93% female population with a mean age of 38 and an age range of 20-

66. The researchers coded an average of 13 years of experience from 14 studies. Zangaro and Soeken (2007) found the strongest relationship between job satisfaction and three common variables of job stress, nurse-physician collaboration, and autonomy among staff registered nurses. These findings track the results of Blegen's (1993) meta-analysis which showed the strongest negative correlation between job satisfaction and job stress.

Zangaro and Soeken (2007) also compared results of studies published between 2000-2003 and 1991-1999. Results showed a stronger correlation between job satisfaction and autonomy in hospital settings compared to specialty facilities (r=.39 vs r=.24) possibly due to clearer expectations, additional competencies and more challenging employment in specialty areas. Similarly, the meta-analysis showed a significantly stronger correlation in the later studies between autonomy and job satisfaction, possibly indicating the differences within different generations of nurses in the workforce and the increasing independence of the nursing profession between 2000-2003 compared to the period between1991-1999. Lastly, studies in the United States showed a significantly stronger relationship between job satisfaction and job stress (r= -.52 vs r=-.47) compared to other countries. Zangaro and Soeken (2007) posited that this might be due to increased management responsibilities and a higher patient load for nurses in the United States.

Job Satisfaction, Empowerment,
   and Control

Saber (2014) conducted a non-a priori meta-analysis of 62 studies of frontline nurse job satisfaction from 1980-2009 to identify large (r >.50), moderate (r =.30-.49) and small (r =.10-.29) summary effect sizes for predictors of job satisfaction. The non-a priori approach meant that variables were not excluded

before data analysis (Saber, 2014). The included quantitative studies had Cronbach alpha scores of .65 for reliability reported for the job satisfaction tool, providing an additional quality measure. The population studied included staff or frontline registered nurses in various care settings and excluded registered nurses with manager or educator titles. Saber (2014) analyzed 48 published and 14 unpublished studies with an overall sample size of 25,389. The meta-analysis included 16 studies (25%) from the 1980s, 13 (20.3%) from the 1990s, and 35 (54.7%) from the 2000s from 10 countries with 44 from the US (68.7%), eight from Canada (12.5%), seven from Asia (11%), and five (7.8%) from Brazil, Jordan, Europe, and Australia (Saber, 2014).

The coded variables showed 27 predictors of job satisfaction, and 22 of these had significant effect sizes ranging from 0.05 to 0.61 (Saber, 2014). Task requirements, empowerment, and control exhibited the largest effect sizes among the coded variables (Saber, 2014). The finding on task requirements differed from previous studies and, specifically for this population of staff nurses, may reflect the changes in the role and increased functions due to recent policy initiatives addressing quality and patient satisfaction, as well as the evolving financial landscape (Saber, 2014). Control likely reflects the nurses' desire to influence change and remain productive even with workplace changes; empowerment is required for higher control and thus is also strongly correlated to jobs satisfaction (Saber, 2014).

The study also reported moderate effect sizes for10 predictors: organizational commitment, positive affectivity, RN/MD relationship, autonomy, leadership support, stress, task significance, RN/RN relationship, distributive justice, and variety (Saber, 2014). On the other hand, the meta-analysis results showed small effect sizes for the variables of negative affectivity, internal

employment opportunities, routinization, workload, wages, continued education, staffing adequacy, outside employment opportunities, age, time in organization, educational level or expertise, years of work experience, gender, and time in position (Saber, 2014). In this study, Saber (2014) also indicated that other variables had greater effects on job satisfaction than wages and workload.

Nurse Turnover, Leadership,
    Network Centrality and
    Organizational Commitment

Nei, Snyder, and Litwiller (2015) conducted a meta-analytic examination of 106 studies to quantitatively examine the antecedent variables of nurse turnover, turnover cognitions and intentions, and actual turnover to identify the strongest predictors of turnover. The studies, collected from various countries, spanned the period from 1971-2010 and included nurses from multiple care settings. Fifty-four variables reported and measured in at least two studies were grouped into the general categories of personal characteristics, role states, job characteristics, group/leader relations, and organizational/environmental perceptions (Nei et al., 2015).

Turnover intention/cognition was found to be moderately associated with actual turnover, so that behaviors indicating an intent to leave may be targeted for retention efforts (Nei et al., 2015). The highest related distal predictors of turnover intention found in this study are low organizational support, low network centrality, poor person-organization fit, negative organizational climate, high job strain, low job control, high role tension, high work-family conflict, low team cohesion, supportive and communicative leadership, and low recognition (Nei et al., 2015).

Nei et al. (2015) found supportive and communicative leadership, network centrality, and organizational commitment as the strongest predictors of actual voluntary turnover. Other factors related to turnover included high role tension, low job control, increasingly challenging work schedule, greater perceived job alternatives, low job involvement and satisfaction (Nei et al., 2015). These variables present opportunities for retention efforts. Network centrality, for instance, refers to a nurse's degree of meaningful social relationships with peers and can be influenced by mentoring relationships and membership in a stable or consistent work group (Nei et al., 2015). Similar to Saber (2014), salary was found to have no significant association with actual nurse turnover (Nei et al., 2015).

CHAPTER 3: METHODOLOGY

This study is a meta-analysis, a method that systematically integrates primary descriptive research on nurse turnover (Reynolds et al., 1992). No review protocol was used; analysis was conducted and reported following the 27 items from the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

Literature Search

Extensive database searches of literature in nursing, allied health, social sciences, and management were conducted using Academic Search Complete (EBSCO), the Web of Science (ISI, Web of Knowledge), Education Research Complete (ERiC EBSCO), and Google Scholar. Unpublished studies were sought through ProQuest Dissertations & Theses Global: The Sciences and Engineering Collection and through email communication with researchers requesting data on any unpublished studies. No unpublished studies were available nor included.

Keywords used in the literature search were selected from the review of the literature and included nurse and intent to quit, turnover, turnover intent, retention, job retention, anticipated turnover, anticipated turnover scale. Additional studies were sought through "footnote chasing," or selecting relevant studies from reference pages on related research. Figure 1 shows the study screening process using PRISMA (2009).
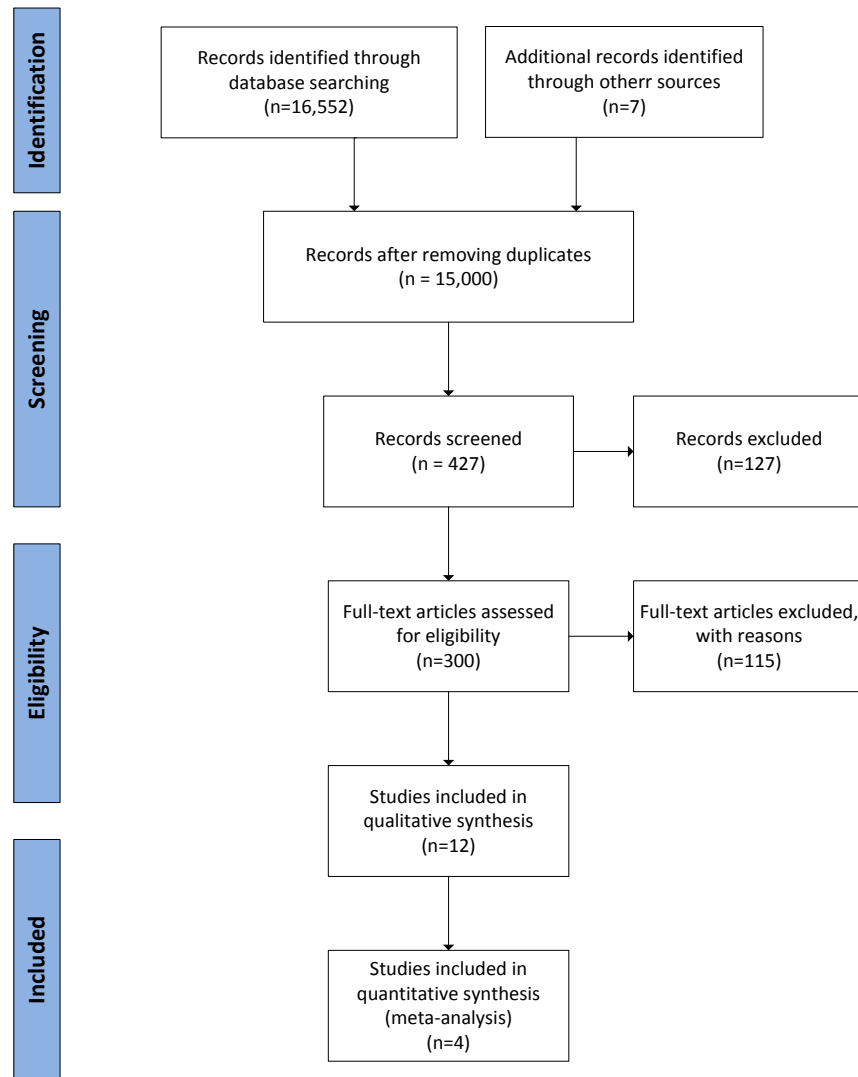
Figure 1: Study screening process using PRISMA (2009)

Inclusion Criteria

Studies included in this study were published in English between 2006-2016 to capture changes in the nursing role and responsibilities over the last ten years. The sample specified registered nurses in acute hospitals in the United States, differentiating the work environments in the nursing field, and possible differences in nursing based on national standards of practice, reimbursement patterns, and other geographic influences.

Since this researcher did not have access to raw data, the studies selected performed and reported quantitative analysis of empirical evidence and provided sample sizes for the study and individual subgroups, which then allowed for the secondary analysis. The studies selected also provided a Cronbach alpha score for the study instruments. The Cronbach alpha provides a measure of internal consistency and the degree to which the selected instrument measures the same intended construct (Simpson, 2009).

Studies were excluded when the sample did not differentiate results from new graduate or newly licensed nurses, nurse managers, nurse educators, advanced practice nurses, nurse leaders or other non-frontline nurses. These groups may have experiences and responsibilities that differ from the study population of experienced frontline nurses.

Data Collection

Selected studies were critically evaluated based on the inclusion criteria, and useful, relevant data was compiled (Table 1). The information extracted included the authors, publication year, sample size, mean, standard deviation, hospital unit, Pearson correlation r, variables measured and the coded factors

affecting turnover intentions, instruments used, Cronbach alpha scores for the selected instruments, and the study conclusions.

Selected Studies

The factors related to turnover gathered from the included studies were coded in table format. These identified factors were tabulated based on Nei's (2015) general categories of turnover determinants of personal characteristics, role states, job characteristics, group/leader relations, organizational/environmental perceptions, attitudinal reactions and turnover. Two or more studies reporting the same factors related to turnover were required to proceed with the meta-analysis.

Email communication with authors did not result in any unpublished data. There exists a risk of publication bias across the included studies. Research literature is mostly biased toward positive results and many are possibly false (Joober, Schmitz, Annable, & Boksa, 2012). Extrapolating this statement to studies of nursing turnover may reveal a possible source of variations in results beyond fundamental observations (Joober et al., 2012).

Table 1

Factors Coded in the Meta-analysis

Factors related to turnover (Nei, et al., 2015)	Variables with two or more studies to correlate with turnover intention	Variables with insufficient studies to correlate with turnover intention
Personal characteristics		Years of nursing experience
Role states		Job tension
Job characteristics		
Group/leader relations		Nurse-physician relations Nursing manager
Organizational/ Environmental perceptions	Structural empowerment	Value congruence Opportunity for advancement Participative governance Unit-decision making Work engagement Scheduling environment Job enjoyment Perception of the quality of care
Attitudinal reactions	Organizational commitment	Job satisfaction
Turnover	Anticipated turnover Turnover cognitions Job search behavior	

Statistical Analysis

The Fresno State Graduate Statistics Studio assisted in the meta-analysis and provided an Excel file with pre-programmed fields and formulas. Data points included the study name and year, and the number of participants (n) in the primary study, which were values entered by the researcher. The file then computed the effect size r, the Fisher z, variance z, standard error, weight, weighted effect size, weighted n, weighted mean effect size, standard error effect size, Z test, and results with a 95% confidence interval. The formulas allowed derivation of the result, the meta-analytic r, with values for a 95% confidence interval. This analysis was completed for each identified variable with at least two studies reporting the primary study's r value.

CHAPTER 4: RESULTS

Twenty-three variables were coded from the included studies. A meta-analysis was conducted for any coded variable reported in at least two studies (Table 1). Organizational commitment and turnover intentions or anticipated turnover were reported in two studies by Somers et al., (2009) and Wagner et al. (2010). Structural empowerment and anticipated turnover were reported by Hauck (2001) and Smith (2012). Table 2 provides details on the four studies in this meta-analysis. The study findings of the meta-analysis of anticipated turnover and these two variables of organizational commitment and structural empowerment are presented in Table 3. The strength of the relationships based on the r value is provided in Table 4.

Table 2

Studies Included in the Meta-Analysis

Study	N	Hospital setting	Coded variables	Coded turnover criterion
Somers, et al., (2009)	288	Acute care	Organizational commitment	Turnover intentions
Wagner, et al., (2010)	496	Acute care	Organizational commitment	Anticipated turnover
Hauck, et al., (2011)	98	Critical care	Structural empowerment	Anticipated turnover
Smith et al., (2012)	50	Behavioral health	Structural empowerment	Anticipated turnover

Table 3

Meta-analysis of Anticipated Turnover

Variable	No. of studies	N	Meta-analytic *r*	95 % Confidence Interval	
				Lower	Upper
Organizational commitment	2	1360	**-0.298**	-0.346	-0.249
Structural empowerment	2	148	**-0.346**	-0.482	-0.194

Table 4

r Values

r value	Strength of the relationship
0.1	Weak
0.3	**Moderate**
≥ 0.5	Strong

Meta-analysis of Organizational Commitment and Turnover

Organizational commitment has a negative correlation with anticipated turnover. As organizational commitment increases, the anticipated turnover decreases. The strength of the relationship between organizational commitment and anticipated turnover is moderate (-.298). The 95% confidence interval is -0.346 to-0.249.

Meta-analysis of Structural Empowerment and Turnover

Structural empowerment has a negative correlation with anticipated turnover. As structural empowerment increases, the anticipated turnover decreases. The strength of the relationship between structural empowerment and anticipated turnover is moderate (-.346). The 95% confidence interval is -0.482—0.194.

CHAPTER 5: CONCLUSION

The current meta-analysis specifically addresses staff nurses in the acute hospital setting in the United States from 2006-2016. Two factors affecting turnover intention were found in the four included studies. Statistical analyses show that both organizational commitment and structural empowerment have a negative correlation with anticipated turnover. The strength of the relationship between organizational commitment and anticipated turnover is moderate (-.298). Similarly, there is a moderate (-.346) strength of the relationship between structural empowerment and anticipated turnover.

The strict inclusion criteria resulted in a low number of primary studies, but confirm prior knowledge. Only four studies with data available for meta-analysis were located from an extensive literature search. These studies focus on organizational commitment and structural empowerment, and the meta-analysis conducted indicate a moderate relationship of these factors with turnover intent.

In comparison, the latest published meta-analysis on nurse turnover by Nei et al. (2015) included 106 studies of nurses from various countries and clinical settings, providing a comprehensive review of primary studies from 1971 to 2007. Furthermore, Nei et al. (2015) included a path analysis of the data to exploring possible relationships between the variables, resulting in a proposed model of factors that result in turnover: organizational tenure, role tenure, job strain, job control, leadership, job satisfaction, organizational commitment, turnover cognition/intentions and actual turnover. Further meta-analytic studies should consider adjusting the inclusion criteria to incorporate a greater number of studies and explore path analysis and turnover model development.

No funding was sought or obtained in this meta-analysis. This current contribution to increasing understanding of turnover intent, while limited, provides additional information that can be used in selecting strategies and retention strategies aimed at reducing nurse turnover.

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APPENDICES

APPENDIX A: PRISMA 2009 CHECKLIST

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Title page
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Abstract
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	2
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	2
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	12
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	14
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	12
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	12
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	14
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	15
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	12
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	-
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	17

Section/topic	#	Checklist item	Reported on page #
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	17
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	15
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	NA
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	18
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	18
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome-level assessment (see Item 12).	-
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group and (b) effect estimates and confidence intervals, ideally with a forest plot.	19
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	20
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	-
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., health care providers, users, and policy makers).	20
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias).	21
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	21
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	22

APPENDIX B: IRB APPROVAL

FRESNO STATE
Discovery. Diversity. Distinction.

SAN JOSÉ STATE
UNIVERSITY

California State University, Northern California Consortium Doctor of Nursing Practice

California State University,
Fresno School of Nursing
IRB Approval

Date: December 2, 2016

RE: DNP1622 Factors that affect turnover intention of registered nurses in the acute hospital: a meta-analysis from 2006-2016 IRB Application

Dear Helen Pagilagan,

As the Chair of the Department of Nursing Research Committee, serving as the Institutional Review Board for the Department of Nursing, I have reviewed and approved your review request for the above-referenced project for a period of 12 months. I have determined your study to meet the criteria for Minimal Risk IRB review.

Under the Policy and Procedures for Research with Human Subjects at California State University, Fresno, your proposal meets minimal risk criteria according to section 3.3.7: Research in which the risks of harm anticipated are not greater, probability and magnitude, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

The Research Committee may periodically wish to assess the adequacy of research process.
If, in the course of the study, you consider making any changes in the protocol or consent form, you must forward this information to the Research Committee prior to implementation unless the change is necessary to eliminate an apparent immediate hazard to the research participant(s).

This study expires: December 2, 2017

The Research Committee is authorized to periodically assess the adequacy of the consent and research process. All problems having to do with subject safety must be reported to the Research Committee. Please maintain proper data control and confidentiality.

If you have any questions, please contact me through the CSU, Fresno School of Nursing Research Committee at tereag@csufresno.edu.

Sincerely,

Terea Giannetta, DNP
School of Nursing, Research Committee, Chair