



A systematic review of registered nurse turnover and retention in the United States

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ABSTRACT

Background: The pandemic has highlighted the struggles of nurses and risks of workforce shortages. Analysis of nurses' job decisions is necessary to mitigate these risks.

Purpose: The purpose of this systematic review was to understand factors associated with registered nurse (RN) work outcomes in the United States, and to examine the inclusion of equity and wellness concepts in this body of literature.

Methods: This review utilized the Preferred Reporting Items for Systematic reviews and Meta-Analyses protocol. Studies from PubMed and CINAHL were included if they focused on RNs in the United States in the past 10 years. A total of 34 studies are included in the review.

Findings: RN work outcomes are impacted by individual, unit level, and organizational factors. Few studies address equity, and many only address RN health in terms of burnout.

Discussion: Future work needs to draw samples from broader practice settings, focus on interventions that promote positive outcomes, and focus on equity and the wellbeing of RNs.

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Introduction

The COVID-19 pandemic has highlighted the dedication of health care professionals and brought attention to workforce issues such as high job demands, burnout, and turnover. A recent survey of registered nurses (RNs) indicated that 23% intended to leave their position and 29% were considering leaving their current position within the next 6 months (American Nurses Foundation, 2022). These issues cannot be solely attributed to the pandemic, as many studies of RNs prior to COVID-19 examined relationships between job

experiences, burnout, and decisions to stay in or leave a job. Maintaining a sufficient supply of RNs is key to improving patient outcomes (Aiken & Sloane, 2020), but high turnover rates increase costs (Kovner et al., 2014) and contribute to instability in the work environment (Hom et al., 2017).

Turnover is one of several concepts (collectively termed “work outcomes”) used to study job outcomes in the nursing workforce; other concepts include retention and intentions for staying or leaving a job. Turnover is defined as the separation of an employee from a job or organization (Hom et al., 2017). Retention is defined as an employee staying in a job and may

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include RNs who leave a job but stay in an organization in a different capacity (Lee et al., 2018). Because it can be difficult to identify specific real-time reasons employees leave, turnover research also assesses intentions to stay in or leave a job, which have a strong but imperfect correlation with actual retention or turnover (Church et al., 2018; Lee et al., 2018). Variables used to predict these outcomes are typically discussed at the levels of individual, unit, and organization.

A recent systematic review and meta-analysis of turnover drew on studies dating back to 1971 and spanning over a dozen countries (Nei et al., 2015). The analysis identified leadership, organizational commitment, and team relationships as the strongest predictors of voluntary turnover, noting that turnover intentions were related to job features such as team cohesion, recognition, and work-family conflict (Nei et al., 2015). Likewise, a meta-analysis of international studies showed a significant relationship between staffing or workload and RN work outcomes (Shin et al., 2018). However, these reviews cover a broad range of cultural and generational contexts and a variety of strategies for providing health care, warranting a careful analysis of data specific to RN work outcomes in the United States.

Equity and Wellness

A review of current data needs to include analysis of workforce equity and wellness as identified in the Future of Nursing 2020–2030 report (National Academies of Sciences Engineering and Medicine, 2021). The report emphasizes the essential role of RNs in promoting health equity in the United States, work which is best accomplished when the nursing workforce itself reflects the racial diversity of the populations it serves. However, RNs who identify as Black, Indigenous, or other People of Color (BIPOC) have disparate work-related outcomes, including disproportionately higher turnover rates (Doede, 2017) and higher levels of COVID-19 morbidity and mortality (National Academies of Sciences Engineering and Medicine, 2021). Few studies report the experiences of BIPOC RNs in the workplace and even fewer overtly discuss the impact of systemic racism in the health care work environment. Understanding the workplace experiences of BIPOC RNs is essential to creating a nondiscriminatory workplace and ensuring equity in nursing.

Pertinent data should also be used to identify evidence-based practices for promoting health and wellbeing in RNs. Wellness is defined as “the state or condition of being well or in good health, in contrast to being ill; the absence of sickness; the state of (full or temporary) recovery from illness or injury” (Oxford English Dictionary, 2020), and professional wellbeing includes concepts specific to the workplace such as burnout or moral distress (National Academies of Sciences Engineering and

Medicine, 2019). A recent report highlighted the dire state of clinician wellbeing in the United States, even without the anticipated long-term impacts related to prolonged periods of exhaustion and stress during the pandemic (National Academies of Sciences Engineering and Medicine, 2019). Because health issues such as burnout can directly impact an RN's work and even patient outcomes (Melnyk et al., 2018), examination of work outcomes needs to look beyond mere workforce numbers to the health of the workers themselves and include measures that capture aspects of both personal and professional health in multiple dimensions.

The pandemic has exacerbated existing issues within the nursing workforce. While nursing leaders across the nation are appropriately focused on sustaining nurses through the present crisis, the long-term effects of demanding and stressful work during the pandemic will likely alter the dynamics of the workforce, affecting health care for years to come. Thus, the purpose of this review is to identify factors associated with RN work outcomes in the United States, and to examine the inclusion of equity and wellness concepts in this body of literature to help guide future work on supporting and sustaining a healthy workforce.

Systematic reviews are conducted for several reasons, including synthesis of extant research, theory evaluation, or identification of problems in research (Page et al., 2021). This review was undertaken to examine the current data on RN work outcomes for study quality, methods, and variables, with specific attention to the inclusion of concepts related to equity and wellness.

Methods

This review utilized the Preferred Reporting Items for Systematic reviews and Meta-Analyses protocol (Page et al., 2021). Studies were eligible for inclusion if the following criteria were met: sample included clinical RNs; published 2010–2020 in English in a peer reviewed journal; study took place in the United States; and article reports research, including quality improvement or case reports that contain turnover data. Studies were ineligible if they met any of the exclusion criteria: relied on data prior to 2010; exclusively studied RNs outside the United States; focused solely on advanced practice RNs, nurse managers, nurses in nonclinical roles, or other non-RN providers; and the work outcome of interest was not measured.

Search and Study Selection

The review utilized PubMed and CINAHL as the primary databases. The initial search occurred in

Table 1 – Database Search Strategies	
PubMed Using MeSH	CINAHL Using Major Heading
1. Personnel turnover: trends OR statistics AND Nurses: psychology OR statistics & numerical data	1. Nurses AND “Personnel Turnover”
2. Nurses: psychology OR statistics & numerical data AND Intention	2. Nurses AND Intention

February 2020 and was updated in October 2021. Major subject headings used to retrieve articles included two main elements, RNs and work/job attitudes or outcomes (Table 1). An initial 477 records were screened at the title and abstract level for inclusion and

exclusion criteria; 107 articles proceeded for full text eligibility review. After screening, a total of 34 studies remained in the review (Figure 1).

Quality and Data Extraction

Study quality was evaluated using the Mixed Methods Assessment Tool (MMAT) (Hong et al., 2018), which sorts studies into five types: qualitative, quantitative randomized, quantitative nonrandomized, quantitative descriptive, and mixed methods. Although there is no set quality score in the MMAT, each type of study has a specific set of quality indicators yielding an overall number ranging from 0 (no criteria met) to 5 (all criteria met). The MMAT assessment was performed separately by both authors, and discrepancies were resolved through discussion and consensus. Next, the primary author completed data extraction and examined reference lists to identify additional records for inclusion screening.

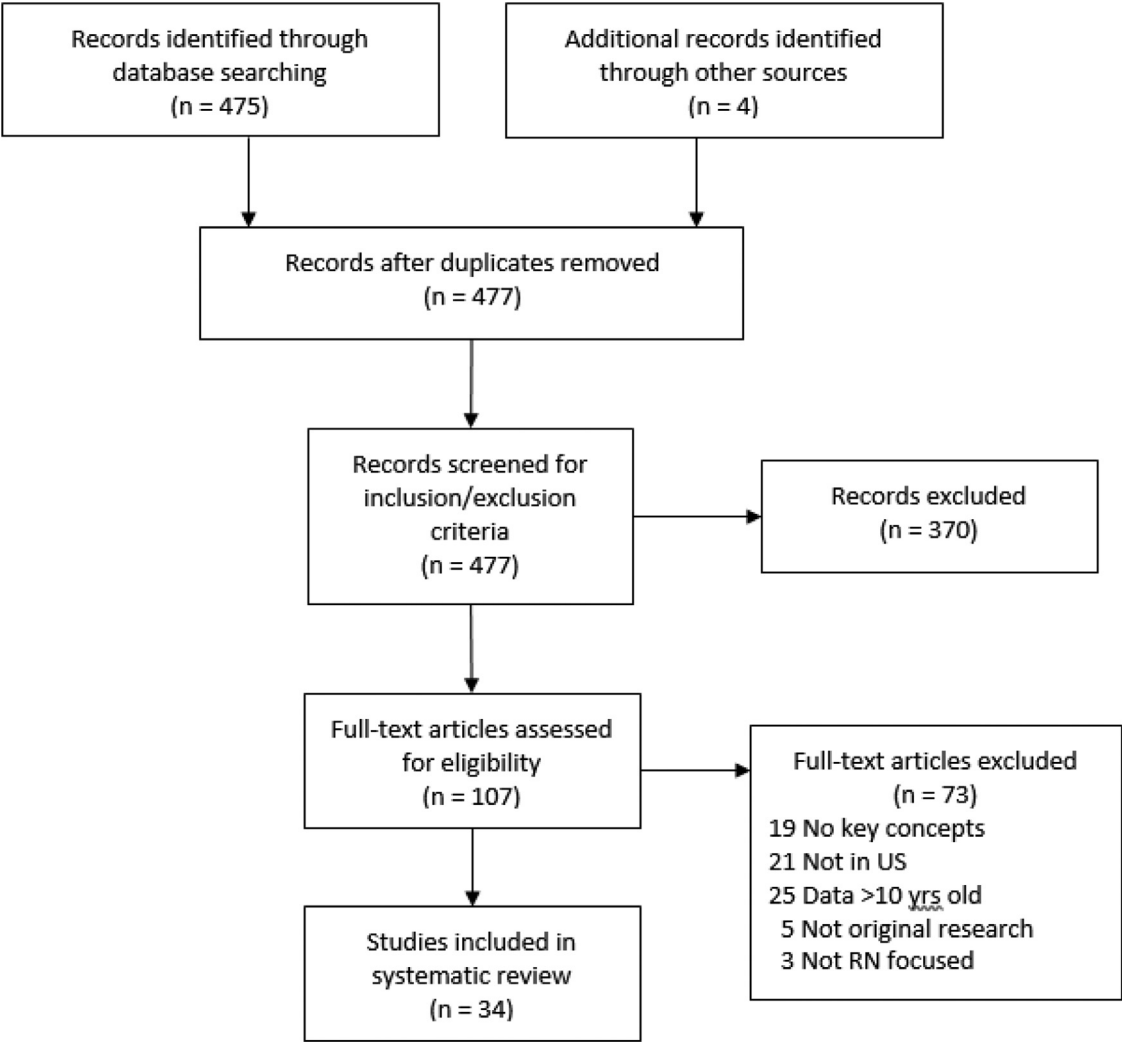


Figure 1 – PRISMA flow diagram.

Findings

Study Quality

The MMAT was used to appraise the quality of each individual study (Hong et al., 2018). Of the 34 included studies, one was qualitative and 33 were quantitative (six nonrandomized and 27 descriptive). There were no randomized or mixed methods studies. Table 2 displays the ratings of each study on MMAT quality criteria. The qualitative study achieved all five quality measures on the MMAT. In the quantitative non-randomized studies (6/34), quality scores ranged from 2 to 5 with a mean of 3.5. Strengths of these studies included appropriate measurements, administration of an intervention as planned, and use of a representative sample. The main weaknesses of these studies were lack of complete outcome data and accounting for confounders. In the quantitative descriptive group (27/34), quality scores ranged from 3 to 5 with a mean of 3.48. Each study used a relevant sampling strategy, appropriate measurements, and appropriate analysis. Weaknesses in this group were addressing nonresponse bias and comparing the sample to the population of interest.

Research Setting

Study settings varied widely in the included reports. Most studies occurred within an individual hospital (10/34) or several hospitals within a region or system (9/34). Several studies recruited from programs or hospitals across multiple states (6/34). Other studies recruited throughout the United States or completed secondary analyses of a national dataset (5/34). Recruitment from specialty organizations occurred in four studies, including one study which recruited RNs from specialty interest sites on social media.

Interventions

Overall, 15% of studies (5/34) reported results of an intervention. Three used a training program or other support structure for NLRNs (Coyne et al., 2020; Medas et al., 2015; Spector et al., 2015), and two involved interventions related to work environment (Adams et al., 2019; Krivanek et al., 2020). Other studies mentioned these factors as they contributed to RN's perceptions and experience but did not test programs or services designed to improve retention and turnover.

Outcomes

The studies included in this review assessed work outcomes including turnover, retention, intent to leave, and intent to stay. Table 3 shows details and available statistics from included studies. The most common outcome was intent to leave (18/34), followed by

turnover (9/34), intent to stay (6/34), and retention (5/34), with some studies using more than one of these elements. Many studies did not report an overall rate from their findings, instead focusing on analysis of factors influencing the outcome.

Turnover

Studies assessing turnover used a combination of self-report and organizational report at either the unit or organizational level. The definitions of turnover varied: some studies included both voluntary and involuntary turnover, some counted RNs who switched jobs within an organization as turnover, and others only counted turnover when RNs left an organization altogether. Overall turnover rates ranged from 0% to 40%, with reported rates for NLRNs ranging from 0% to 23%; point estimates for specific studies are available in Table 3.

Retention

Studies focusing on retention (5/34) included RNs' self-reports of factors influencing retention, measured at specific timepoints. Each study with retention as a primary outcome was focused on NLRNs. Three studies reported overall retention rates for the study sample, with two of the three studies using the same dataset, so retention rates were 83% and 100%. The remaining two studies did not report an overall retention rate.

Intent to Leave

Of the studies assessing intent to leave (18/34), only two used a validated tool, the Anticipated Turnover Scale (Hinshaw & Atwood, 1980). The remaining studies used either single items or sets of scored Likert-type scale items asking RNs to rate their intentions to leave. These items were commonly associated with a specific timeframe. Studies using single-item questions reported overall rates of intent to leave within a year from 12% to 52% and intent to leave within 3 to 4 years up to 50%. Studies using Likert-type scales report low–moderate rates such as 2.47 to 2.92 on a five-point scale or 2.67 to 3.62 on a seven-point scale.

Intent to Stay

Intent to stay was assessed with single or multiple items indicating likelihood of staying in the job or organization for a specific amount of time. Only three of the studies examining intent to stay used a validated tool. Two studies reported moderate intent to stay, for example 3.3/5 mean score on a scale indicating intent to stay (Bontrager et al., 2016; Harrison & Ledbetter, 2014). One study of NLRNs noted a trend toward decreasing intent to stay across the first year of practice (Coyne et al., 2020). The most notable result indicated an increase in intent to stay from 58% to 90% of respondents after initiating a team-building intervention (Krivanek et al., 2020).

Table 2 – Quality Appraisal of Included Studies

	MMAT Quality Components: Quantitative Nonrandomized Studies					# Criteria Met
	Relevant Sampling Strategy	Sample Represents Population	Measurements Appropriate	Nonresponse Bias Risk Low	Appropriate Analysis	
Blegen et al., 2017	Yes	No	Yes	Can't tell	Yes	3
Bontrager et al., 2016	Yes	No	Yes	No	Yes	3
Brunetto et al., 2013	Yes	No	Yes	Can't tell	Yes	3
Budin et al., 2013	Yes	Yes	Yes	Yes	Yes	5
Bugajski et al., 2017	Yes	No	Yes	Can't tell	Yes	3
Carthon et al., 2021	Yes	Yes	Yes	Can't tell	Yes	4
Coyne et al., 2020	Yes	Can't tell	Yes	Can't tell	Yes	3
Dyrbye et al., 2018	Yes	Can't tell	Yes	Can't tell	Yes	3
Geun et al., 2016	Yes	No	Yes	No	Yes	3
Geun et al., 2018	Yes	No	Yes	No	Yes	3
Hunt, 2014	Yes	No	Yes	No	Yes	3
Kagwe et al., 2019	Yes	No	Yes	No	Yes	3
Kelly et al., 2021	Yes	Can't tell	Yes	Can't tell	Yes	3
Kovner et al., 2014	Yes	Yes	Yes	Yes	Yes	5
Oyeleye et al., 2013	Yes	No	Yes	No	Yes	3
Park et al., 2016	Yes	Can't tell	Yes	Can't tell	Yes	3
Perry et al., 2018	Yes	Can't tell	Yes	Can't tell	Yes	3
Phillips, 2020	Yes	Can't tell	Yes	Can't tell	Yes	3
Raso et al., 2021	Yes	Can't tell	Yes	Can't tell	Yes	3
Ulrich et al., 2019	Yes	Yes	Yes	Yes	Yes	5
Vardaman et al., 2020	Yes	Can't tell	Yes	Yes	Yes	3
Viotti et al., 2018	Yes	Can't tell	Yes	No	Yes	4
Vogus et al., 2014	Yes	Yes	Yes	Yes	Yes	5
Wilson et al., 2011	Yes	No	Yes	Can't tell	Yes	3
Winters, 2019	Yes	Can't tell	Yes	No	Yes	3
Yang and Caughlin, 2017	Yes	Can't tell	Yes	Yes	Yes	4
Yarbrough et al., 2017	Yes	Yes	Yes	Yes	Yes	5
	MMAT Quality Components: Quantitative Nonrandomized Studies					# Criteria Met
	Sample Representative	Measurements Appropriate	Complete Outcome Data	Confounders Accounted for	Intervention Administered as Planned	
Adams et al., 2019	Can't tell	Yes	No	No	Yes	2

(continued)

Table 2 – (Continued)

	MMAT Quality Components: Quantitative Nonrandomized Studies					
	Relevant Sampling Strategy	Sample Represents Population	Measurements Appropriate	Nonresponse Bias Risk Low	Appropriate Analysis	# Criteria Met
Church et al., 2018	Yes	Yes	Yes	No	Yes	4
Harrison and Ledbetter, 2014	Yes	Yes	Yes	Yes	Yes	5
Krivanek et al., 2020	Yes	Yes	No	Can't tell	Yes	3
Medas et al., 2015	No	Yes	No	Yes	Yes	3
Spector et al., 2015	Yes	Yes	No	Yes	Yes	4
	MMAT Quality Components: Qualitative Studies					
	Qualitative Approach Appropriate	Adequate Collection Methods	Findings Derived From Data	Results Substantiated by Data	Coherence Throughout Methods	# Criteria Met
Anselmo-Witzel et al., 2017	Yes	Yes	Yes	Yes	Yes	5

Factors Impacting Work Outcomes

Individual Factors

At the individual level, factors which impacted RN work outcomes included demographic factors and self-rated responses to work such as burnout. Several studies indicated that age or generation (e.g., Boomer, Gen X) impact the rates of actual or intended turnover or retention, but there was not agreement among studies in the direction of impact. While 24/34 (71%) of studies gathered data on level of nursing education, only one study reported a significant finding that RNs with a graduate degree were more likely to leave a job than those without (Kelly et al., 2021). Individual factors showing significant impact on work outcomes were job satisfaction (Bontrager et al., 2016; Church et al., 2018; Yang & Caughlin, 2017; Yarbrough et al., 2017) and organizational commitment or job embeddedness (Brunetto et al., 2013; Church et al., 2018; Geun et al., 2018; Vardaman et al., 2020).

Unit Level Factors

Multiple factors at the unit level impacted RN work outcomes and can be categorized as leadership, peer/group relationships, and general work environment. Across studies, leadership had moderate significant correlations with turnover intent (Brunetto et al., 2013; Medas et al., 2015) or was identified as an important factor in retention (Bugajski et al., 2017; Ulrich et al., 2019). In addition to having a supportive or competent leader, positive ratings on workplace relationships or teamwork were significantly associated with retention or intent to stay (Bontrager et al., 2016; Brunetto et al., 2013; Bugajski et al., 2017; Kagwe et al., 2019;

Kovner et al., 2014; Medas et al., 2015; Perry et al., 2018). Data from five studies indicated that negative workplace experiences of abuse or hostility increased the likelihood of turnover or intent to leave (Budin et al., 2013; Kagwe et al., 2019; Viotti & Converso, 2016; Wilson et al., 2011; Yang & Caughlin, 2017).

In addition to unit relationships, elements of the work environment included staffing, workload, autonomy, and scheduling. Staffing and workload had significant associations with outcomes (Kagwe et al., 2019; Park et al., 2016; Perry et al., 2018; Phillips, 2020; Viotti & Converso, 2016) or were identified by RNs as important factors in job retention (Anselmo-Witzel et al., 2017; Bugajski et al., 2017; Ulrich et al., 2019). A few studies also linked outcomes to job features such as nursing practice/autonomy or scheduling (Carthon et al., 2021; Medas et al., 2015; Park et al., 2016; Perry et al., 2018).

Organizational Factors

Eight of the included studies assessed the impact of organizational factors on RN work outcomes. Studies assessing the impact of Magnet designation showed higher retention rates (Blegen et al., 2017) and lower odds of turnover (Park et al., 2016) in organizations with Magnet designation than those without. Organizations affiliated with academic universities also had increased retention rates, as did an urban vs. suburban or rural location, and having more than 400 beds (Blegen et al., 2017).

Within organizations, opportunities for RN training and development also impact work outcomes. Data suggest that high quality orientation (Geun et al., 2018) and implementation of an NLRN training program (Medas et al., 2015) improve retention in the first few

Table 3 – Characteristics and Selected Outcomes of Included Studies

Study	Sample/Setting or Data Source	Outcome(s) (Unit of Analysis)	Overall Outcome Rate [†]	Predictors or Correlates	Equity Concepts	Wellness Concepts
Adams et al., 2019	Emergency dept. RNs in community hospital (n = 30)	Turnover, intent to leave (Individual)	• Turnover rate 4% at 6 months postintervention	• N/A (intervention study)	Not addressed	Burnout as key concept
Anselmo-Witzel et al., 2017	Bedside RNs in large urban hospital (n = 10)	Lived experience of retention (Individual)	• Retention rate 100%	Qualitative findings: • Malalignment of personal/organizational values increases intent to leave • Safe practice environment, challenges, and opportunities improve retention	Not addressed	Physical and emotional strain of job identified in themes
Blegen et al. 2017	NLRNs in three states (National Council for State Boards of Nursing study) (n = 1,082)	Retention (Individual)	• Overall 1 year retention 83%	Retention associated with • Age*: 20–29 (88%), 30–39 (81%), 40–61 (84%) • Geography*: Urban (85%), suburban (81%), rural (77%) • Hospital size*: 87% at ≥400 beds vs. 78–82% at <400 beds • Magnet status*: 92% vs. 77% non-Magnet • University-affiliation*: 88% vs. 82% not affiliated [‡]	Race assessed as a predictor (no significant relationship found)	Not addressed
Bontrager et al., 2016	NLRNs in regional system (n = 84)	Intent to stay (Individual)	• Overall moderate intent to stay (3.3 ± 1 on five-point scale)	• Intent to stay correlated with preceptor effectiveness (r = .26*), group cohesiveness (r = .55*), job satisfaction (r = .76*)	Not addressed	Not addressed
Brunetto et al., 2013	RNs from two private urban hospitals (n = 730)	Intent to leave (Individual)	• Overall rate not reported	• Turnover intent correlated with leader-member exchange (r = −.42***), teamwork (r = −.33***), wellbeing (r = −.53***), affective commitment (r = −.64***) Higher mean scores for wellbeing, lower scores for turnover intent in Baby Boomers compared to GenX/GenY	Not addressed	Wellbeing as key concept
Budin et al., 2013	RNs from national sample (RN Work Project) (n = 1,407)	Intent to leave (Individual)	• Overall rate not reported	• Relationship between level of abuse and intent to leave w/in 3 years: no abuse = 24% intent; moderate verbal abuse = 29%; high verbal abuse = 43% [§]	Marital status, family setting, ethnicity, and ESL included as predictors (no significant impacts found)	Self-rated health included in survey
Bugajski et al. 2017	RNs from community hospital (n = 279)	Retention (Individual)	• Overall rate not reported	• RNs rated following as "very important" for retention: quality care, competent management, management support staff, clinically competent colleagues, sufficient staff	Not addressed	Not addressed
Carthon et al. 2021	RNs from community settings in four states (n = 11,778)	Intent to leave (Individual)	• Overall intent 22.5% for Black RNs vs. 14.5% for White RNs**	• In final model accounting for eight aspects of job dissatisfaction, Black RNs had higher intent to leave vs. white RNs (OR 1.34, 95% CI [1.08–1.65])	Race is primary study variable	Not addressed
Church et al., 2018	NLRNs from US hospitals (Vermont New Grad	Turnover, intent to leave (Individual)	• 8.3% turnover at 2 years posthire	• Turnover intent correlated with org commitment (r = −.43**), empowerment (r = −.25**), job satisfaction (r = −.24**)	Not addressed	Not addressed

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Table 3 – (Continued)

Study	Sample/Setting or Data Source	Outcome(s) (Unit of Analysis)	Overall Outcome Rate [†]	Predictors or Correlates	Equity Concepts	Wellness Concepts
Coyne et al., 2020	Residency Program) (n = 149)	Retention, intent to stay (Individual)	• 100% retention at 1 year • No significant change in ITS across time	• No significant correlations b/t predictors and actual turnover • No specific correlations or predictors identified	Not addressed	Survey included items related to stress
Dyrbye et al., 2018	Novice RNs at a level 1 trauma center (n = 23)	Intent to leave (Individual)	45% indicate moderate or greater intent to leave in next 2 years	• Nurses indicating intent to leave generally had less favorable scores on wellbeing index • Wellbeing index score of 2 or greater predicts RNs with low quality of life and moderate or greater intent to leave their current position in next 24 months (LR 2.43, 95% CI [1.73–3.44])	Not addressed	Wellbeing, burn-out, quality of life as key concepts
Geun et al., 2016	RNs across US (n = 637)	Turnover (Individual)	Within first year of US employment: 40% left unit 32% left organization	• Odds of turnover increased with increasing gap b/t expectations and experiences for work responsibilities (OR 1.06, 95% CI [1.01–1.12])	Experience as foreign educated RN central to study	Not addressed
Geun et al., 2018d	RN members of specialty org. (n = 201)	Turnover: voluntary only (Individual)	Within first year of US employment: • 40.3% left unit • >31.8% left organization	• Organizational turnover impacted by perceived quality of orientation (OR .53, 95% CI [0.37–0.76]) and affective commitment (OR .38, 95% CI [0.22–0.66]) • Similar findings for unit turnover	Experience as foreign educated RN central to study	Personal health assessed
Harrison and Ledbetter 2014	RN members of specialty org. (n = 201)	Turnover, intent to stay (Organization)	• 1-year turnover range 0–16% • Intent to stay scores range from 2.44 to 3.0 on scale where 2 = 1–3 years, 3 = 4–5 years	• No statistically significant differences in turnover between sites. • Difficult to compare since sites had different program features	Not addressed	Stress and support
Hunt, 2014	NLRN programs (n = 3)	Intent to leave (RN:supervisor dyad)	• Overall rate not reported	• Anticipated turnover weakly correlated with congruency score ($r = .17^*$), years nursing experience ($r = .03^*$)	Not addressed	Not addressed
Kagwe et al., 2019	RNs from five regional hospitals (n = 119)	Intent to leave (Individual)	• 36% actively looking for new job, 29% likely to leave in next year	• Intent to leave correlated with workplace relationship items ($r = -.30$ to $-.25^*$), and workload ($r = -.36^*$). • Reasons for leaving rated “most likely”: better pay (60%), fear of assault (42.4%), bullying (31.8%), fear of losing nursing skills (28.3%), heavy workload (12%)	Not addressed	Not addressed
Kelly et al., 2021	RNs from single hospital (n = 94)	Turnover (Organization)	• Mean organizational and position turnover 8%	• Intent to be in position in 1 year negatively predicts organizational turnover (-1.47^{***}) [†] • Each 1 unit increase in burnout-exhaustion scale increases likelihood of turnover nearly 1% • RNs with graduate degree 68% more likely to turnover than ADN, 47% more likely than BSN	Not addressed	Burnout as key concept
	RNs from three hospitals in system (n = 1,688)				Not addressed	Not addressed

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Table 3 – (Continued)

Study	Sample/Setting or Data Source	Outcome(s) (Unit of Analysis)	Overall Outcome Rate [†]	Predictors or Correlates	Equity Concepts	Wellness Concepts
Kovner et al., 2014	NLRNs from national sample (RN Work Project) (cohorts and subsets vary in size)	Turnover (Individual)	<ul style="list-style-type: none"> • 1-year turnover rates 13–23% • Hospital net turnover 5–6% 	<ul style="list-style-type: none"> • Results suggest teamwork and communication impact ITL 		
Krivanek et al., 2020	Staff from single unit (n = 35 RNs)	Intent to stay	<ul style="list-style-type: none"> • Intent to stay increased from 58% to 90% 	<ul style="list-style-type: none"> • NA 	Not addressed	Not addressed
Medas et al., 2015	RNs from single hospital (n = 79)	Intent to leave, retention (Individual)	<ul style="list-style-type: none"> • Retention 90–94% postimplementation of NLRN program 	<ul style="list-style-type: none"> • Intent to leave at 1 year correlated with work and role transition factors • strong ($r \geq .6^*$): weekends off • moderate ($r = .4-.59^*$): supervisor, scheduling flexibility, encouraging manager, positive role models, exciting/challenging work, realistic job expectations, preceptor builds confidence • weak correlations ($r = .2-.39^*$): autonomy, interdisciplinary interaction, recognition from peers, comfort with delegation • Intent to leave highest at 12 months after hire 	Not addressed	Not addressed
Oyeleye et al., 2013	RNs from regional system (n = 122)	Intent to leave (Individual)	<ul style="list-style-type: none"> • Mean intent to leave 4.9 ± 2.9 (scale 0–16) 	<ul style="list-style-type: none"> • Turnover intent correlated with years experience ($r = .26^*$), burnout ($r = .37^*$) 	Not addressed	Burnout and stress as key concepts
Park et al., 2016	Hospitals from national survey (National Data for Nurse Quality Indicators) (n = 497)	Turnover (Unit)	<ul style="list-style-type: none"> • Mean turnover ranges from $25\% \pm 17\%$ to $27\% \pm 20\%$ • 1.5–2% involuntary turnover due to workforce reduction 	<ul style="list-style-type: none"> • Magnet facilities: higher % turnover for RNs seeking different job experiences • Non-Magnet facilities: Higher rates of RN turnover related to work environment (OR 1.54, 95% CI [1.01–1.81]), including staffing and workload (OR 4.68, 95% CI [1.57–13.99]) and move to position with a more desirable work schedule (OR 1.44, 95% CI [1.02–2.04]) 	Not addressed	Not addressed
Perry et al., 2018	Nursing staff (70% RNs) from 110 Army treatment facilities (n = 2,596)	Intent to leave (Individual, organization)	<ul style="list-style-type: none"> • Overall rate not reported 	<ul style="list-style-type: none"> • Multiple models showing intention to quit negatively associated with staffing adequacy, teamwork between nurses and physicians, and reliance on nursing care practice, • Intent to leave associated with fewer adverse events 	Not addressed	Not addressed
Phillips, 2020	RNs at two regional hospitals (n = 58)	Intent to leave (Individual)	<ul style="list-style-type: none"> • 52% intent to leave in next 12 months 	<ul style="list-style-type: none"> • Intent to leave correlated with workload perception ($r = -0.51^{***}$) and burnout ($r = -0.44^{***}$) • In all models, workload perception had significant impact on ITL (26–29% explanatory) but burnout did not 	Not addressed	Burnout as key concept
Raso et al., 2021	RNs from across US (n = 4,178)	Intent to leave (Individual)	<ul style="list-style-type: none"> • 68% had no intent to leave, 20% undecided (12% do intend) 	<ul style="list-style-type: none"> • Intent to leave more likely: • Direct care RNs vs. management ($\chi^2 = 14.0^{**}$) • RNs age <39 or >60 ($\chi^2 = 30.8^{***}$) • <2 years or 3–11 years experience ($\chi^2 = 45.4^{***}$) 	Not addressed	Not addressed
Spector et al., 2015	NLRNs in three states (n = 1,088)	Retention (Individual)	<ul style="list-style-type: none"> • Retention 83% at 1 year following program 	<ul style="list-style-type: none"> • Voluntary turnover rate 16%, involuntary 1% • Turnover rates lowest among established NLRN 	Not addressed	Not addressed

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Table 3 – (Continued)

Study	Sample/Setting or Data Source	Outcome(s) (Unit of Analysis)	Overall Outcome Rate [†]	Predictors or Correlates	Equity Concepts	Wellness Concepts
Ulrich et al., 2019	RN members of specialty organization (n = 8,080)	Intent to leave (Individual)	<ul style="list-style-type: none"> • 32% intent to leave w/ in 12 months • 22% intent to leave w/in next 3 years 	programs (12%***), followed by newer programs (14.7%*), and limited programs (25%*) [‡] • RN responses to what improves retention: better staffing, higher salary/better benefits, better leadership, more respect from peers and managers, more meaningful recognition	Not addressed	Moral distress, physical safety, and wellness assessed
Vardaman et al., 2020	RNs in urban facility (n = 207)	Intent to leave (Individual)	<ul style="list-style-type: none"> • Mean intent to leave 2.47 ± .91 (scale of 1–5) 	• Turnover negatively correlated with job embeddedness (r = -.23**) and change self-efficacy (r = -.33*) • Change self-efficacy almost completely mediates relationship between job embeddedness and turnover	Not addressed	Not addressed
Viotti et al., 2018	RNs in regional hospital system (n = 341)	Intent to leave (Individual)	Mean intent to leave 2.92 ± 1.28 (scale of 1–5)	• Intent to leave moderately correlated w/workload (r = .41***), coworker incivility (r = .33***), organizational efficiency (r = -.39***) • Workload mediates intention to leave through coworker incivility	Not addressed	Not addressed
Vogus et al., 2014	RNs in three regional facilities (n = 1,352)	Turnover (Individual, unit)	• Unit turnover rate 15% ± 14%	• Safety organization associated w/lower rates of RN turnover (-.45*) [‡] RN emotional exhaustion predicts higher turnover rates (.59-.62***) [‡]	Not addressed	Burnout as key concept
Wilson et al., 2011	RNs in community hospital (n = 130)	Intent to leave (Individual)	<ul style="list-style-type: none"> • Intent to leave 40%: 19% definitely and 20.5% possibly 	• Observed hostility predicts intent to leave (regression showed small increase in R ² .37–.38 over null model***) [‡]	Not addressed	Not addressed
Winters, 2019	Emergency dept. RNs from social media groups (n = 406)	Intent to leave (Individual)	<ul style="list-style-type: none"> • Intent to leave w/in next 4 years 50%: 13.5% within next 1 year 	• No clear presentation of individual turnover predictors	Not addressed	Not addressed
Yang and Caughlin, 2017	RNs from geographic region (n = 574)	Intent to leave (Individual)	<ul style="list-style-type: none"> • Intent to leave in two samples 2.67 ± 1.63 and 3.62 ± 1.78 (scale 1–7 strongly disagree to strongly agree) 	• Turnover intent correlated with job satisfaction (r = -.72**), coworker physical (r = .21**) and psychological aggression (r = .28**) and aggression-preventive supervisor behavior (APSB; r = -.23**)	Not addressed	Burnout and physical symptoms assessed
Yarbrough et al., 2017	RNs from single facility (n = 67)	Intent to stay (Individual)	<ul style="list-style-type: none"> • Mean years intent to stay ranged from 6.27 to 12.2 	• Intent to stay correlated with job satisfaction (r = .40**) and career development (r = .29*)	Not addressed	Not addressed

Note. NLRN, newly licensed registered nurse; RN, registered nurse; US, United States.

† Scales used mostly Likert-type questions, with higher numbers indicating stronger agreement with intention.

‡ Analysis of variance.

§ Pairwise comparisons.

|| Used same data as Geun et al. (2016), but completed analysis with different predictors.

¶ Linear regression analyses.

f Multilevel regression analysis.

* p < .05.

** p < .01.

*** p < .001.

years of practice. Facilities with established NLRN training programs experience the lowest 1-year turnover rates compared to those with newer programs or no program at all (Spector et al., 2015). Other studies identify challenging and exciting work along with opportunities for career development as important factors in retention (Anselmo-Witzel et al., 2017; Carthon et al., 2021; Medas et al., 2015; Yarbrough et al., 2017). The final organizational factors are focused on compensation, with RNs identifying better benefits at other organizations as a reason to leave their current job (Kagwe et al., 2019; Ulrich et al., 2019) and disparate rates of intent to leave in Black RNs partly related to salary and tuition benefits (Carthon et al., 2021).

Equity

Five out of the 34 studies assessed relationships between race or ethnicity and RN work outcomes. Of these, only Carthon et al. (2021) was focused on the relationship between race and work outcomes, reporting higher intent to leave among Black RNs compared to White RNs. Of the remaining studies, two explored the experiences of foreign-educated RNs using the same dataset (Geun et al., 2016, 2018), one assessed the relationship between race and retention rate (Blegen et al., 2017), and one examined the impact of ethnicity, language, marital status, and family setting on retention (Budin et al., 2013); none of these four studies reported significant impacts on work outcomes related to race or ethnicity. The remaining 29 studies included in this review either did not report race/ethnicity demographics for the sample or did not report an analysis using those demographics.

Wellness

Only one of the included studies focused specifically on well-being as a predictor of turnover (Dyrbye et al., 2018). In total, some aspect of individual wellness was measured in nearly half of the included studies (15/34), with some using the wellness indicator as a primary predictor of the work outcome (6/15) and others including the information in passing (8/15). Burnout was the most common concept (7/15), followed by other measures of mental and emotional health (5/15) and physical health and wellbeing (5/15). Each study assessing burnout used a validated scale such as Maslach's Burnout Inventory (Maslach et al., 1986). Validated scales assessing other dimensions of health such as stress were used alone or in addition to a validated burnout scale in five studies. The remainder of studies (4/15) simply used items asking participants to rate some aspect of their individual health or wellbeing.

In general, higher levels of burnout were associated with higher rates of negative work outcomes (Kelly et al., 2021; Oyeleye et al., 2013; Phillips, 2020; Vogus et al., 2014). One of the most recent studies showed that each one unit increase on the burnout-exhaustion scale increased the likelihood of turnover

by nearly 1% (Kelly et al., 2021). Studies measuring more general wellbeing noted moderate negative correlations between wellbeing and turnover intent (Brunetto et al., 2013; Dyrbye et al., 2018), with one study indicating that scores on a wellbeing measure predicted quality of life and intent to leave (Dyrbye et al., 2018).

Discussion

The purpose of this review is to examine current data about RN work outcomes in the United States and note the presence of equity and wellness within the body of work. There is no overt disagreement between the findings presented here and those noted in reviews spanning broader time frames and international settings (Nei et al., 2015). Instead, the results provide a more focused view of current data and the opportunity to discuss the conceptual and methodological gaps present in RN turnover research to direct future study.

Conceptual Gaps

There are several conceptual gaps in current turnover data for RNs in the United States: systems-level factors, equity, and RN health. Very few studies acknowledge systems-level factors and their capacity to impact RN work outcomes. Systems-level research in health care is typically focused on patient outcomes rather than clinician outcomes (Peters, 2018), making it difficult to assess the impact of regulatory and reimbursement changes on RN turnover. For example, the addition of a workflow and documentation requirement related to a national patient safety initiative may increase RN workload and impact job intentions, but these additions are often considered “part of the job” and effects have not been assessed and reported in this literature.

Analyzing systemic factors includes attending to equity and diversity within the profession. In this review, only one study focused on race as a predictor of outcomes and found significant disparities (Carthon et al., 2021). Those studies reporting demographics more generally did not report different outcomes. Including race or ethnicity as key variables is essential to providing more robust data that addresses the disparate turnover rates (Doede, 2017) and other negative work impacts (Carthon et al., 2021) experienced by RNs who identify with racially marginalized groups.

Measures of RN health were missing from most of the literature. While a few studies assess physiologic measures, there is very little research that examined the relationship between the health and well-being of RNs and work outcomes. In a systematic review, Priano et al. (2018) identified that in comparison with other US females, fewer RNs engaged in healthy

lifestyle behaviors such as diet, activity, and weight management, putting RNs at risk for poorer health-related quality of life and increased risk of cardiovascular disease. Other studies identify a lifetime prevalence of 85% for work-related musculoskeletal injury in RNs (Letvak, 2013) and link the work environment to negative health outcomes for RNs and negative patient outcomes (Lake et al., 2019). Because the RN skillset includes knowledge and promotion of healthy lifestyle behaviors, research examining the impact of other factors such as work environment on RN health is needed. Addressing the wellbeing of RNs is even more urgent given the additional strain of the pandemic on practicing nurses.

Methodological Gaps

Findings from this review illuminate gaps in current methodologies—sampling, outcomes, and design—that should be considered in future research. Often, reports did not include meaningful comparison of the sample to a regional or national sample of RNs, hindering the application of findings. Despite the 40% to 44% of RNs working outside of the hospital setting nationally (Smiley et al., 2018), few studies in the current research literature include nurses outside acute care, and only one study in this review was exclusively focused on nurses in ambulatory settings (Carthon et al., 2021). As utilization of telehealth in health care delivery increases, the role of RNs in primary and specialty ambulatory care, particularly in rural areas, will continue to grow (American Academy of Ambulatory Care Nursing, 2017; Buerhaus, 2017). It is critical that future RN workforce research be inclusive of the variety of settings in which RNs work.

Another concern with the current research is the inconsistency of outcomes measured, definitions, tools, and reporting. Approximately half of the studies rely on self-reported intentions to stay in or leave a job, which may or may not indicate actual decisions to leave or stay (Church et al., 2018; Kelly et al., 2021; Lee et al., 2018). Despite the availability of validated tools such as the Anticipated Turnover Scale (Hinshaw & Atwood, 1980), studies assessing intentions relied on the authors' own questions or use timeframes without a stated theoretical basis. Further, lack of clear statistical reporting makes it difficult to compare findings. Some studies only reported results of correlation or regression analyses without giving overall rates of the outcome of interest, while others reported scale averages but omitted information for interpreting those numbers. In a review of the definitions of turnover used in nursing literature, Kovner et al. (2014) emphasize the need for transparent and complete reporting of turnover rates, specifically identifying turnover as in/voluntary or un/avoidable, and including specifics such as RNs changing roles within vs. leaving an organization. Research reports need greater focus on transparency and comparability of results to existing data

to uncover the nuances and complexities of turnover research.

Third, the preponderance of descriptive studies in the literature prohibits more expansive application of key findings. Current research on RN turnover in the United States is primarily composed of descriptive studies that took place within one organization and focused on the association between individual attributes and job decisions. These descriptive studies provide an overview of factors influencing RN work decisions, but do not provide information about causality or ways to ameliorate negative outcomes. For organizations to understand how to improve turnover rates among RNs, research should move beyond descriptive methods to more sophisticated methodologies examining causality. Moreover, the paucity of intervention studies, and particularly the absence of any randomized intervention research, may be reflective of the challenges of conducting workforce studies with more robust methods and may explain the lack of evidence-based practices to support RNs in the workplace. Research needs to move toward developing and testing upstream interventions that prevent RNs from forming an intention to leave (Brewer et al., 2012), focus on retaining specific at-risk populations (Carthon et al., 2019; Doede, 2017), and ensure that a healthy work environment is maintained (Ulrich et al., 2019).

Many of the concepts identified in this review—satisfaction, burnout, teamwork, support—have been the subject of research in the nursing workforce for several decades. However, findings from this review underscore the fact that very little current published data evaluate how interventions focused on these concepts affect RN work outcomes. This is problematic because the rapidly changing context of health care directly impacts the work experiences of RNs, so data or even interventions that were effective in previous years may require change or supplemental intervention to maintain relevance.

Finally, overarching frameworks or conceptual models underpinning the research on turnover are noticeably missing from the existing literature. Of the 16 studies in this review that mentioned a theoretical framework or structure, none used the same model. Because nursing is not the only field interested in employee turnover, concepts and models from other disciplines should be considered for their applicability and utility in studying RNs. Current research in the field of organizational behavior includes more nuanced models and concepts such as job embeddedness, collective turnover, or enthusiastic vs. reluctant retention (Hom et al., 2012, 2017; Lee et al., 2018). When selecting a framework for a study, researchers should also consider the purposeful treatment of time and change as factors impacting RN job decisions. One example would be to identify how a professional development program targeting early-career RNs impacted retention at multiple timepoints, with careful attention to the influence of other role transitions,

educational activities, and unit occurrences (e.g., changing managers). Overall, research in RN work outcomes needs to draw on other disciplines to include theory-driven use of concepts and variables, provide accurate and replicable measurement of those variables, and ensure that temporal and situational contexts are addressed.

Limitations

This review provides a focused and current analysis of the data on RN work outcomes. As in any review, the searches used for this study have the potential to miss relevant articles, such as those that report on turnover and retention as secondary outcomes or were indexed outside of mainstream health databases. In addition, the limitation to peer-reviewed published works excludes gray literature such as dissertations or other case studies with impactful results. Finally, studies that only represent work on RNs may not accurately reflect the current data on health care employee work outcomes. Research in other disciplines may offer other approaches or interventions to consider in RN workforce studies. Despite these limitations, this review provides an up-to-date examination of the current state of research in RN work outcomes and identifies areas warranting deeper investigation.

Future Directions

Future work on RN turnover needs to build on rather than repeat existing work by using representative samples and frameworks that allow for inclusion of systems level factors, equity, and wellness. As the focus of workforce research naturally evolves to include outcomes related to the pandemic, studies should evaluate interventions that support RNs and are pointed toward improving holistic outcomes rather than merely gathering self-reported data about work experiences. Key concepts should include equity, wellness, and other constructs identified in broader research on employee turnover and retention.

Research should incorporate the current knowledge base and gaps in the literature. For hospital-based RNs, descriptive work should be paired with interventions and programs aimed at ameliorating the lasting effects of the pandemic and improving work outcomes, perhaps involving nuanced attention to supportive work environments or programs designed to help RNs process their work and personal experiences during the pandemic. Research on RN work outcomes must also expand beyond acute care. In the community, robust descriptive work should focus on representing RN experiences in different settings. With that data, organizations can implement programs and initiatives to support RNs and improve retention. As work to increase the number of baccalaureate prepared RNs continues, research should also continue to include examination of the impact of educational preparation on job outcomes. Future research must

attend to the experience of RNs who identify as people of color to help root out and address racist policies and practices built into the employment process and work setting.

Conclusion

The RN workforce has historically experienced high turnover rates, and the experience of working during a pandemic will likely exacerbate issues driving turnover in the years to come. Current data indicate that factors at individual, unit, and organizational levels all impact RN work outcomes, but there is insufficient data about equity and wellness as they impact RNs and their job decisions. Health care employers and researchers share responsibility to ensure that research addressing work outcomes focuses on supporting RNs themselves and their critical role in the nation's health.

Authors' Contributions

Kyla F. Woodward: Conceptualization, Investigation, Writing-Original draft preparation; Mayumi Willgerodt: Conceptualization, Supervision, Writing-Reviewing and Editing.

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