

## Occupational Turnover Factors for Certified Registered Nurse Anesthetists: A Scoping Review

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### Abstract

The objective of this scoping review is to understand the extent and type of evidence related to occupational turnover factors for certified registered nurse anesthetists (CRNA) in the United States. Demand for anesthesia services is increasing dramatically. CRNAs provide a significant number of anesthetics each year and are crucial to accessible anesthesia in the U.S. Understanding occupational turnover factors for CRNAs is vital to providing cost effective, reliable anesthesia services for Americans. Studies relevant to CRNA turnover in the U.S. were included for this review. Due to differences in education, scope of practice, and practice environment, studies involving nurse anesthetists outside the U.S. were excluded. Studies with mixed provider populations including physicians, registered nurses, other advanced practice providers, and students were also excluded. Five studies were included for data extraction. All the studies employed electronic or mailed questionnaires. Common factors associated with occupational turnover were compensation, retirement, job satisfaction, and burnout. Findings suggest that occupational turnover factors are multifactorial and include broad concepts such as job satisfaction, burnout, and organizational climate.

## Introduction

According to the U.S. Bureau of Labor Statistics<sup>1</sup>, demand for advanced practice nurses, including certified registered nurse anesthetists (CRNA), is projected to increase by 45% between 2020 and 2030. In the U.S., CRNAs deliver upwards of 50 million anesthetics annually and are vital to accessible anesthesia services<sup>2</sup>. In the aftermath of the SARS-CoV-2 (COVID-19) pandemic, resignations among healthcare providers have reached unprecedented levels<sup>3</sup>. Given the tremendous cost of occupational turnover (hereafter referred to as turnover) in healthcare<sup>4</sup>, as well as evidence that turnover impacts the quality of healthcare delivery<sup>5</sup>, exploring the evidence related to turnover factors for CRNAs is important.

A preliminary search of MEDLINE Complete and Embase was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified. Results of the preliminary search indicated literature on the topic that met inclusion criteria and justified conducting a review. Exploring the available evidence in a scoping review format was deemed appropriate given the body of literature specific to CRNAs. The objective of this scoping review is to understand the extent and type of evidence in relation to turnover factors for CRNAs in the U.S.

## Review question

What factors are associated with turnover for CRNAs in the U.S.?

## Eligibility criteria

Participants of interest for this scoping review are CRNAs in the U.S. No exclusion criteria were set for demographic variables such as gender, age, practice type, or geographical location within the U.S. If the study focused on practicing CRNAs in the US, it was eligible for inclusion. Exclusion criteria in the participant realm included studies focusing on a mix of provider type. For example, studies were identified that included data related to turnover for physicians and CRNAs. To keep within the boundaries of the objective for this study, literature including physicians, advanced practice providers other than CRNAs, registered nurses (RN), and students were excluded.

## Concept

Occupational turnover is the conceptual foundation for this review. Hanisch and Hulin<sup>6</sup> conceptualized turnover as voluntary employee withdrawal from an organization. Turnover intention is also included as a concept as it is correlated with turnover behavior<sup>7</sup>. Turnover intention varies from turnover in that the latter is defined by the behavior of voluntary organizational withdrawal, while the former is a cognitive intention<sup>8</sup>. Research has shown that turnover intention accounts for 9%-25% of turnover<sup>7,9</sup>. Given the correlation between turnover intention and turnover, studies addressing turnover and turnover intention for CRNAs were eligible for inclusion.

In the literature, turnover and turnover intention have been linked with a variety of factors. Occupational stress, job satisfaction, burnout, organizational climate, and workplace civility are examples of factors that have been linked to

turnover<sup>10,11,12,13</sup>. Literature focusing on factors outside of turnover, while maintaining some connection to turnover, were excluded to maintain fidelity to the objective of this review.

## Context

Contextual inclusion criteria for this literature review were limited to the study setting being in the U.S. For this scoping review, "CRNAs" refers to nurse anesthetists practicing in the U.S., and "nurse anesthetists" refers to nurse anesthetists internationally. Preliminary review of the literature identified significant differences between CRNAs and nurse anesthetists in other countries. Examples of some of those differences are degree of training, scope of practice, and role overlap with physicians delivering anesthesia. Given that turnover factors for nurse anesthetists might not universally apply, studies addressing turnover and turnover intention in nurse anesthetist populations outside of the U.S. were excluded. Dissemination date was considered as an eligibility criterion, but no limitations were set on date of publication. Given the relative newness of the nurse anesthesia profession, any article related to turnover factors for CRNAs was considered for inclusion.

## Types of sources

This scoping review considered both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies were considered for inclusion. This review also considered descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion. Qualitative studies were considered that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research. In addition, systematic reviews that met the inclusion criteria were also considered, depending on the research question. Text and opinion papers were not considered for inclusion in this scoping review. The rationale here was preliminary review of the literature indicated a sufficient research-based body of literature to exclude text and opinion papers.

## Methods

The proposed scoping review was conducted in accordance with the JBI methodology for scoping reviews<sup>14</sup>.

## Search strategy

The search strategy's aim was to locate published studies. An initial limited search of MEDLINE Complete and Embase was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for MEDLINE Complete and Embase. Keywords for the search included nurse anesthetist, CRNA, burnout, job satisfaction, occupational stress, turnover, turnover intention, intent to quit, moral injury, moral distress, job retention, and job engagement. The search strategy, including all identified keywords and index terms, was adapted for each

included database and information source. The reference list of all included sources of evidence were also screened for additional studies. Studies published in English were included. No date range limitations were set for study inclusion. Databases searched include MEDLINE Complete and Embase.

### Study/source of evidence selection

Following the search, all identified citations were collated and uploaded into EndNote 20.4.1/2021 (Clarivate Analytics, PA, USA) and duplicates removed. Following a pilot test, titles and abstracts were then screened independently by each of the authors for assessment against the inclusion criteria for the review. Potentially relevant sources were retrieved in full. The full text of selected citations was assessed in detail against the inclusion criteria by each of the authors. Reasons for exclusion of sources of evidence at full text that did not meet the inclusion criteria were recorded and are reported below. Any disagreements that arose between the reviewers at each stage of the selection process was resolved through discussion.

### Data extraction

Data was extracted from papers included in the scoping review by two independent reviewers using the Joanna Briggs Institute (JBI) scoping review data extraction template<sup>15</sup>. The data extracted included specific details about the participants, concept, context, study methods and key findings relevant to the review questions. Methodological quality or risk of bias was not appraised, consistent with guidelines for scoping review conduct<sup>16</sup>.

### Results

Initial results of the search returned a total of 508 items. After removal of duplicates, 317 articles were screened. 247 articles were excluded as not related based on appraisal of title or abstract. 70 articles were obtained in full for review. Of the 70, 34 articles were excluded due to a focus on nurse anesthetists outside of the U.S. Of the remaining 36, 22 were excluded after review of the full text due to not relating to turnover factors. 9 articles were excluded after review, due to either the inclusion of other types of providers or focusing on factors loosely related to turnover (eg, occupational stress or job satisfaction). In total, five articles underwent data extraction for inclusion in this review.

#### Characteristics of sources of evidence

Three of the articles were disseminated between 2020 and 2022<sup>17,18,19</sup>. One was published in 2007<sup>20</sup>, with the final article being published in 1990<sup>21</sup>. Four of the five studies were based on data obtained from mailed or electronic surveys<sup>18,19,20,21</sup>, with one being secondary analysis of data collected via electronic survey<sup>17</sup>. All the studies were based in the U.S., dealt with turnover and/or turnover intention, and the studied population was limited to practicing CRNAs. Two of the studies included data from CRNAs across the U.S.<sup>17,19</sup>, two were limited to geographical regions in the U.S.<sup>18,21</sup>, with one being limited to CRNAs practicing in the Department of Veterans Affairs<sup>20</sup>.

#### Factors associated with turnover and turnover intention

Each article presented factors associated with turnover and or turnover intention differently. Factors are presented here in order of number of articles associating it with turnover. This order is

not intended to indicate ranking or level of importance as not each article ranked factors in terms of impact on turnover or turnover intention. Turnover factors for CRNAs most frequently cited in the literature included for this review were compensation, retirement, job satisfaction, and burnout.

Compensation was a factor associated with turnover or turnover intention in each of the articles<sup>17,18,19,20,21</sup>. "Better pay" was the terminology used in three of the studies<sup>17,18,19</sup>, with "pay satisfaction"<sup>21</sup> and "non-competitive salaries"<sup>20</sup> being other terms used. Compensation was the only factor identified in each of the articles.

Retirement as a factor for turnover or turnover intention was identified in four of the articles<sup>17,18,19,20</sup>. Job satisfaction was associated with turnover in three of the articles<sup>18,19,21</sup>. Burnout was identified as a factor in turnover, or turnover intention, in three of the articles<sup>17,18,19</sup>. Career advancement as a factor for turnover was identified in three of the articles<sup>17,19,21</sup>. The terminology associated with career advancement varied, with the following terms being represented in the studies included in this review: "promotion" and "career advancement"<sup>17</sup>, "advance position"<sup>19</sup> (as a reason for leaving), and "promotion satisfaction"<sup>21</sup>. Better working conditions was identified as a factor for turnover in two of the articles<sup>18,19</sup>. Finally, geographic relocation was listed as a factor for turnover in two articles<sup>17,19</sup>.

Other factors associated with turnover and/or turnover intention were more specific and did not share categorization similarities between studies. The list of all these factors is too broad to incorporate here, but examples are role ambiguity and role restraints, incompetent leadership, limited scope of practice, dissatisfaction with schedule, stressful work environment, and inadequate staffing<sup>17,19</sup>. Broader concepts like job satisfaction and burnout were also associated with turnover<sup>19</sup>.

### Discussion

The major finding of this scoping review is that turnover factors for CRNAs are multifactorial. Compensation, retirement, job satisfaction, burnout, career advancement, and geographic relocation were cited across the literature as turnover factors for CRNAs in the U.S. However, this evidence indicates that not just one of the above factors alone is responsible for turnover or turnover intention in CRNAs. For example, Dexter et al<sup>17(p487)</sup> found that CRNAs who had left their position provided 2.5 "primary" reasons for quitting, and CRNAs who had considered leaving their positions had an average of 3.7 primary reasons. Another finding of this scoping review is that the broad concepts of job satisfaction and burnout have a multitude of indicators that impact turnover and turnover intention. Mahoney et al<sup>19</sup> found that burnout and job satisfaction were determined by job and personality characteristics. Examples of some of those characteristics were autonomy, skill variety, agreeableness, age, and hours worked per week. Lea et al<sup>18</sup> reported that burnout was associated with a decrease in job satisfaction, which contributed to turnover intention. Factors identified by Lea et al<sup>18</sup> as contributing to burnout were job feedback (more feedback decreasing burnout), CRNA and administration relations (better relations decreasing burnout), and work and personal responsibility conflicts (conflicts resolved in favor of work increasing burnout).

Organizational climate is another concept that deserves mention. Lea et al<sup>18</sup> and Szigeti et al<sup>21</sup> both mention organizational conditions or climate as a factor in turnover. Sein Myint et al<sup>22(p175)</sup> define organizational climate as, “a shared perception about an organization by its workforce”. Lea et al<sup>18(p145)</sup> tie this concept into turnover in the following statement, “The degree to which an organizational climate values, supports, communicates, and collaborates with CRNAs was a significant predictor of burnout and resultant changes in job satisfaction and turnover intention”. Szigeti et al<sup>21(p324)</sup> state, “The organizational or work conditions variables—i.e., role ambiguity, opportunity to participate, and performance constraints—were moderately related to intention to quit”. What these statements suggest is that the concept of organizational climate, with its varied indicators, plays a role in turnover intention. These findings have implications for practice. Perhaps the biggest implication for practice is that preventing turnover requires a multifaceted approach from organizations. To synthesize the findings into practice implications, categorization of the myriad factors might be useful. For example, retirement and geographical relocation could be categorized as personal factors. Factors such as better pay, career advancement, job satisfaction, and burnout could be categorized under the umbrella concept of organizational climate. Even though organizations might not ultimately be able to prevent attrition secondary to personal factors (i.e., retirement or employees choosing to relocate), this evidence suggests that efforts to ensure competitive compensation, and an organizational climate that minimizes burnout and maximizes job satisfaction, are valuable considerations to mitigate turnover. These findings are also useful as they suggest future directions for research. Exploring the overlap between the concepts of job satisfaction, burnout, and organizational climate would help define conceptual boundaries and areas of overlap, as well as

elucidate their relationship with turnover. To our knowledge, no qualitative studies have been conducted on turnover and turnover intention for CRNAs in the U.S. Qualitative research, with its exploration of the lived experience of participants, may be useful in providing a more textured understanding in this area. This scoping review is not without limitations. First, the studies included in this review used disparate approaches to address factors associated with turnover, thus, the findings are not generalizable beyond the scope of the initial study. Second, CRNA populations studied in this body of literature varied, resulting in findings that may not apply to CRNAs in the U.S. at large. Finally, all but one of the studies<sup>18</sup>, was based on data collected prior to the COVID-19 pandemic, the impact of which on turnover in healthcare is still an area of active research, and thus may not reflect COVID-19 associated factors involved in the unprecedented turnover currently being experienced in healthcare.

## Conclusion

The objective of this study was to explore the extent and type of literature related to turnover factors for CRNAs in the U.S. To that end, this scoping review found that turnover factors for CRNAs are myriad, with compensation, retirement, job satisfaction, and burnout being the most frequently mentioned factors in the literature included for this review. Broad concepts such as burnout, job satisfaction, and organizational climate were also associated with turnover in this body of literature. The broad nature of these concepts, with overlap between them, suggest the value of future research in this area. Qualitative research in this area might also be of value in addressing gaps in the qualitative body of literature. Finally, practice implications from this scoping review indicate that organizational efforts in the areas of competitive compensation and a positive organizational climate may be rewarded with a decrease in turnover for CRNAs they employ.



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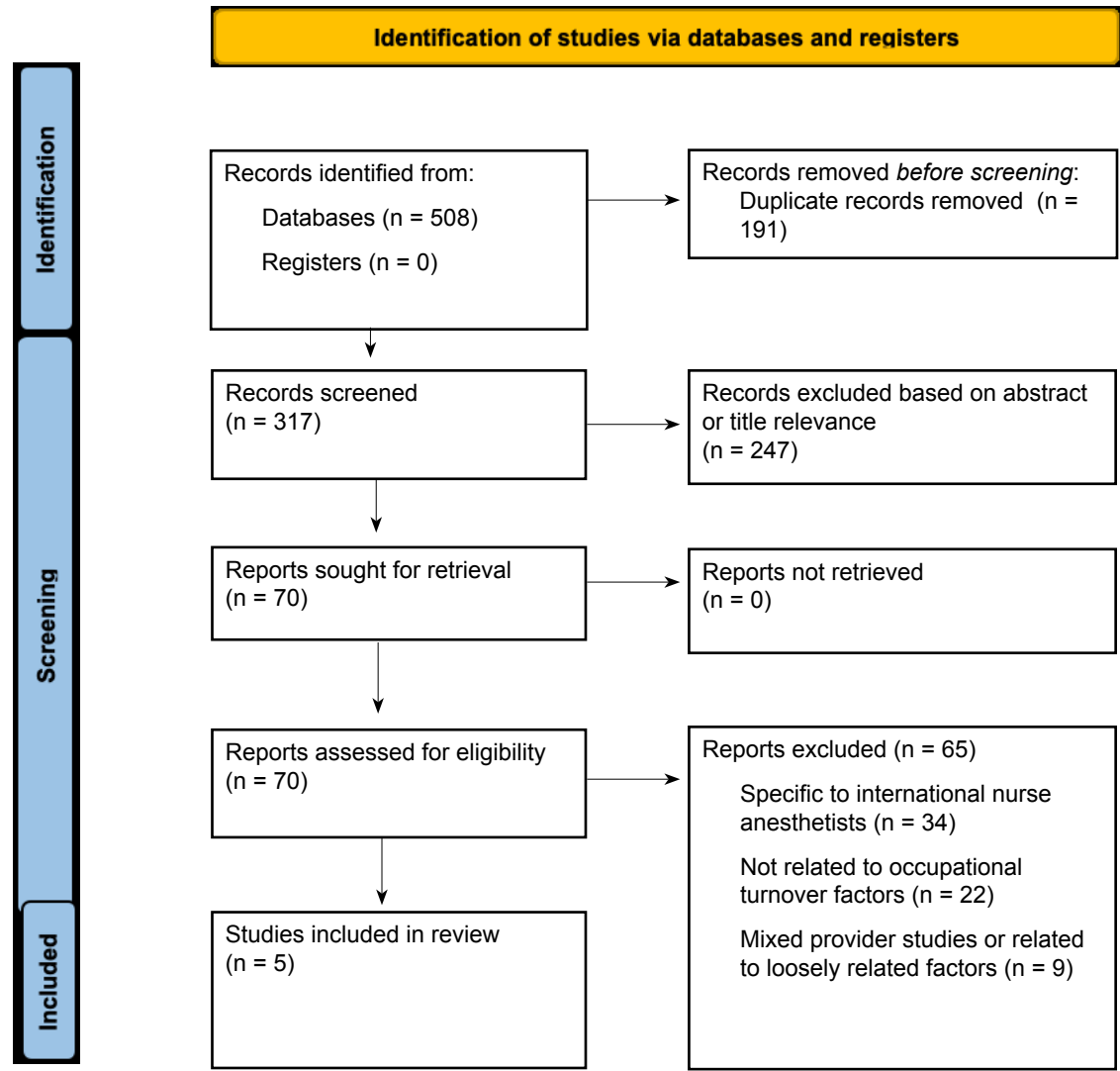
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Appendices

Figure 1: Prisma Diagram



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

**Table 1.**

## Factors Associated with CRNA Occupational Turnover

Study	Factors
Dexter et al, 2021 <sup>17</sup>	Better pay/benefits, burnout, lack of good management/ leadership, inability to practice to the full extent of my license, retirement, scheduling, interpersonal differences, stressful work environment, promotion, inadequate staffing, geographic relocation, lack of advancement opportunities, career change, physical demands of the job
Leah et al, 2022 <sup>18</sup>	Burnout, job satisfaction, better working conditions, better pay, retirement
Mahoney et al, 2020 <sup>19</sup>	Better working conditions, retirement, better pay, geographic relocation, promotion, job satisfaction, burnout
United States, Government Accountability Office, 2007 <sup>20</sup>	Salaries not competitive
Szigeti et al, 1990 <sup>21</sup>	Overall satisfaction, pay, promotion, role ambiguity, role constraints