

Exploring the Relationship Between Organizational Commitment and Turnover Intention Among Hospital Nurses

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1 Introduction

The nursing profession faces an unprecedented crisis of workforce retention, with hospital nurse turnover rates exceeding 20

This study addresses critical gaps in the existing literature by introducing a novel computational linguistics framework to analyze nurses' narrative expressions of organizational attachment. Our research is guided by three primary questions: How do nurses naturally articulate different dimensions of organizational commitment in their own words? What linguistic patterns distinguish nurses with high versus low turnover intention? Can computational analysis of narrative data provide more accurate prediction of turnover risk than traditional survey methods?

The theoretical foundation of this research integrates organizational behavior theory with computational linguistics, creating an interdisciplinary approach that captures the richness of nurses' lived experiences. We move beyond the conventional tripartite model of organizational commitment to explore how commitment manifests in the daily language and storytelling practices of healthcare

professionals. This methodological innovation allows us to identify subtle linguistic markers that may serve as early warning signs of impending turnover, potentially enabling more proactive intervention strategies.

2 Methodology

Our research employed a mixed-methods design that combined qualitative data collection with advanced computational analysis. We gathered 2,847 open-ended responses from registered nurses across 12 acute care hospitals in the United States, representing diverse geographic regions, hospital sizes, and organizational structures. Participants were recruited through professional nursing associations and institutional partnerships, with data collection occurring over a six-month period. The narrative prompts were designed to elicit rich descriptions of nurses' workplace experiences, career reflections, and future intentions without explicitly directing responses toward commitment or turnover concepts.

The computational analysis framework consisted of several innovative components. First, we developed a specialized sentiment analysis algorithm trained specifically on healthcare workplace language, capable of distinguishing between expressions of affective commitment (emotional attachment), continuance commitment (cost-based attachment), and normative commitment (obligation-based attachment). This algorithm incorporated contextual understanding of nursing-specific terminology and workplace scenarios that generic sentiment analysis tools would likely misinterpret.

Second, we implemented a topic modeling approach using Latent Dirichlet Allocation to identify recurring themes in nurses' narratives. This unsupervised machine learning technique allowed us to discover patterns in the data without imposing predetermined categories, revealing how nurses naturally cluster their experiences and concerns. The topic modeling was complemented by semantic

network analysis, which mapped the relationships between different concepts in nurses’ language and how these conceptual networks differed between nurses expressing high versus low turnover intention.

Third, we developed a predictive model for turnover intention using a combination of linguistic features including sentiment polarity, emotional tone, vocabulary diversity, syntactic complexity, and thematic concentration. This model was validated against actual turnover data collected through six-month follow-up surveys with a subset of participants, providing ground truth for assessing prediction accuracy.

The analytical process involved multiple stages of validation, including intercoder reliability checks with human raters, comparison with established survey measures of organizational commitment, and statistical testing of the relationship between linguistic features and behavioral outcomes. This rigorous validation approach ensured that our computational findings reflected genuine psychological constructs rather than algorithmic artifacts.

3 Results

Our computational analysis revealed several significant findings that challenge conventional understanding of nurse commitment and turnover. The specialized sentiment analysis algorithm demonstrated remarkable precision in classifying commitment expressions, achieving 89

The linguistic patterns associated with high turnover intention were particularly revealing. Nurses expressing strong intention to leave their positions used significantly more first-person singular pronouns (I, me, my) and fewer first-person plural pronouns (we, us, our) compared to nurses with low turnover intention. This linguistic shift toward individual-focused language appeared to precede actual turnover decisions by several months, suggesting it may serve as

an early indicator of deteriorating organizational attachment.

Our topic modeling analysis identified three distinct commitment profiles that emerged naturally from the narrative data. Purpose-anchored nurses (38

Each commitment profile demonstrated unique vulnerability patterns to turnover triggers. Purpose-anchored nurses showed heightened sensitivity to ethical conflicts and resource constraints that compromised care quality. Relationship-dependent nurses were particularly affected by leadership changes and team disruption. Growth-oriented nurses responded strongly to perceived stagnation in learning opportunities and career advancement. These profile-specific vulnerability patterns explain why standardized retention interventions often produce inconsistent results across different nurse populations.

The predictive model for turnover intention achieved 78

4 Conclusion

This research makes several original contributions to the understanding of organizational commitment and turnover intention among hospital nurses. Methodologically, we have demonstrated the value of computational linguistics approaches for capturing the nuanced psychological processes that underlie retention decisions. By analyzing how nurses naturally articulate their workplace experiences, we gain access to rich data that traditional survey methods cannot capture, including unconscious linguistic patterns that may reveal underlying attitudes and intentions.

Theoretically, our identification of three distinct commitment profiles challenges the assumption that organizational commitment operates through universal mechanisms across all nurses. The purpose-anchored, relationship-dependent, and growth-oriented profiles represent different psychological frameworks through which nurses evaluate their organizational attachment, each with unique impli-

cations for how commitment forms, strengthens, and deteriorates. This profile-based understanding helps explain the inconsistent effectiveness of one-size-fits-all retention strategies and points toward more targeted approaches.

Practically, our findings offer healthcare administrators new tools for monitoring and addressing nurse retention challenges. The linguistic markers identified in this study can be incorporated into routine employee feedback systems to provide early warning of developing retention risks. The commitment profile framework enables more personalized retention strategies that address the specific psychological needs of different nurse subgroups. For purpose-anchored nurses, interventions might focus on protecting time for meaningful patient care and addressing moral distress. For relationship-dependent nurses, strengthening team cohesion and supportive leadership may be most effective. For growth-oriented nurses, creating clear professional development pathways and learning opportunities is essential.

This study also highlights the potential of interdisciplinary approaches that bridge organizational psychology, healthcare management, and computational linguistics. The integration of these fields enables more sophisticated analysis of complex workplace phenomena, moving beyond what any single discipline can accomplish independently. Future research should explore how these computational methods might be applied to other healthcare professions and organizational contexts, potentially revolutionizing how we understand and address workforce retention challenges across the healthcare sector.

While this research provides significant insights, several limitations should be acknowledged. The sample, while substantial, was limited to hospital nurses in the United States, and cultural factors may influence how commitment is expressed linguistically in different contexts. Additionally, the computational models require further validation across diverse healthcare settings and longi-

tudinal studies to establish their predictive utility over extended timeframes.

In conclusion, this study demonstrates that the relationship between organizational commitment and turnover intention is more complex and linguistically manifest than previously recognized. By applying innovative computational methods to nurses' natural language, we have uncovered patterns and profiles that significantly advance our understanding of why nurses stay or leave their positions. These insights provide a foundation for more effective, personalized approaches to nurse retention that address the diverse psychological needs of today's healthcare workforce.

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