

Evaluating the Relationship Between Professional Identity and Career Satisfaction Among Nursing Staff

Brandon Mills, Madeline Cruz, Theo Simmons

1 Introduction

The nursing profession represents a critical component of healthcare delivery systems worldwide, yet it faces persistent challenges related to workforce retention, burnout, and career satisfaction. Traditional approaches to understanding nursing career satisfaction have predominantly focused on extrinsic factors such as compensation, working conditions, and organizational support. While these factors undoubtedly influence job satisfaction, they provide an incomplete picture of the psychological mechanisms that sustain professional commitment in demanding healthcare environments. This research introduces a paradigm shift by examining the intrinsic psychological construct of professional identity as a primary determinant of career satisfaction among nursing staff.

Professional identity in nursing encompasses the internalized values, beliefs, and norms that define what it means to be a nurse, shaping how individuals perceive their role, make clinical decisions, and derive meaning from their work. The formation and maintenance of professional identity represent complex psychological processes that evolve throughout a nurse's career, influenced by edu-

cational experiences, workplace socialization, clinical encounters, and personal reflections. Despite its potential significance, the relationship between professional identity and career satisfaction remains underexplored through computational and quantitative lenses.

This study addresses several critical gaps in the existing literature. First, we move beyond traditional survey-based methodologies by implementing a computational framework that captures the dynamic, multi-dimensional nature of professional identity. Second, we examine how specific components of professional identity interact to influence career satisfaction outcomes. Third, we identify modifiable factors in professional identity development that healthcare organizations can target to enhance workforce retention and well-being.

Our research is guided by three primary questions: How can computational methods effectively model the complex structure of professional identity among nursing staff? What specific patterns in professional identity development predict sustained career satisfaction? How do organizational factors moderate the relationship between professional identity and career outcomes? By addressing these questions, we aim to provide both theoretical insights and practical strategies for supporting nursing professional development and retention.

2 Methodology

2.1 Research Design and Participant Recruitment

This study employed a longitudinal mixed-methods design, integrating quantitative assessments with computational analysis of qualitative data. We recruited 1,247 nursing professionals from 12 healthcare institutions representing diverse practice settings, including academic medical centers, community hospitals, and specialized care facilities. Participants represented various nursing roles (reg-

istered nurses, nurse practitioners, clinical nurse specialists), experience levels (novice to expert), and clinical specialties. Data collection occurred over 24 months, with assessments at baseline, 6, 12, 18, and 24 months.

Participant recruitment followed a stratified sampling approach to ensure representation across key demographic and professional characteristics. Inclusion criteria required current nursing licensure, direct patient care responsibilities for at least 50

2.2 Data Collection Instruments

We implemented a multi-modal data collection strategy comprising standardized instruments, reflective journals, and organizational metrics. Career satisfaction was measured using the revised Nursing Career Satisfaction Scale (NCSS-R), which assesses satisfaction across six dimensions: professional growth, work-life balance, recognition, autonomy, relationships, and meaningful work. Professional identity was evaluated through both traditional scales and innovative computational methods.

Participants maintained electronic reflective journals using a secure platform designed for this study. Journal prompts encouraged reflection on clinical experiences, professional challenges, ethical dilemmas, and personal growth. These narratives served as the primary data source for computational analysis of professional identity. Additionally, we collected organizational data including unit characteristics, staffing ratios, leadership support, and professional development opportunities.

2.3 Computational Framework for Professional Identity Analysis

Our methodological innovation lies in the development of a computational framework for analyzing professional identity through natural language processing and network analysis. The framework comprises four integrated components: text preprocessing and feature extraction, semantic analysis, network construction, and longitudinal modeling.

The text preprocessing pipeline transformed reflective journal entries into analyzable units while preserving semantic richness. We employed specialized nursing domain dictionaries to enhance semantic understanding of professional concepts. Feature extraction identified professional identity markers including values expression, role perception, ethical reasoning, and emotional responses to clinical situations.

Semantic analysis utilized transformer-based language models fine-tuned on nursing literature to capture nuanced expressions of professional identity. We developed a novel Professional Identity Coherence Index (PICI) that quantifies the internal consistency and integration of professional values across narrative content. The PICI algorithm evaluates semantic similarity, conceptual alignment, and value congruence within and across journal entries.

Network analysis constructed professional identity networks for each participant, where nodes represent identity components (e.g., advocacy, clinical expertise, compassion) and edges represent the strength of association between components. Network metrics including density, centrality, and modularity provided quantitative indicators of identity structure and complexity.

Longitudinal modeling employed dynamic time series analysis to track identity development trajectories and their relationship to satisfaction outcomes. We implemented mixed-effects models to account for individual variability while

identifying population-level patterns.

2.4 Statistical Analysis

Quantitative analysis integrated traditional statistical methods with computational outputs. We conducted correlation analyses, multiple regression, structural equation modeling, and cluster analysis to examine relationships between professional identity metrics and career satisfaction. Moderator analyses investigated how organizational factors influenced these relationships. All analyses controlled for demographic and professional characteristics to isolate the unique contribution of professional identity factors.

3 Results

3.1 Professional Identity Network Characteristics

The computational analysis revealed substantial variation in professional identity network structures across participants. Network density values ranged from 0.18 to 0.76 ($M=0.42$, $SD=0.14$), indicating differences in how integrated various identity components were within individuals' professional self-concepts. Centrality analysis identified advocacy, clinical judgment, and patient-centered care as core components across most participants' identity networks.

We observed three distinct network profiles through cluster analysis: integrated identities characterized by high density and balanced centrality (42

Longitudinal analysis showed that professional identity networks generally increased in complexity and integration over time, though the rate and pattern of development varied substantially. Participants in supportive organizational environments showed more rapid identity integration and greater network stability.

3.2 Relationship Between Professional Identity and Career Satisfaction

Our findings demonstrate strong and consistent relationships between professional identity characteristics and career satisfaction. The Professional Identity Coherence Index showed a significant positive correlation with overall career satisfaction ($r=0.67$, $p<0.001$), explaining 45

Network metrics provided additional insights into this relationship. Identity network density correlated positively with satisfaction ($r=0.58$, $p<0.001$), suggesting that more integrated professional identities support greater career satisfaction. Betweenness centrality of core professional values showed particularly strong associations with satisfaction in professional growth ($r=0.62$, $p<0.001$) and meaningful work ($r=0.59$, $p<0.001$) dimensions.

Participants with integrated identity profiles reported significantly higher satisfaction scores across all dimensions compared to those with specialized or fragmented profiles ($F[2,1244]=87.3$, $p<0.001$, $\eta^2=0.12$). The integrated group showed 34

3.3 Moderating Effects of Organizational Factors

Organizational context significantly moderated the relationship between professional identity and career satisfaction. Supportive leadership, adequate staffing, and professional development opportunities strengthened the positive association between identity coherence and satisfaction. In environments with strong organizational support, the relationship between identity network density and satisfaction was significantly stronger ($r=0.41$, $p<0.001$) than in less supportive environments ($r=0.22$, $p<0.01$).

Unit-level analysis revealed that characteristics such as interdisciplinary collaboration, ethical climate, and recognition systems influenced how professional

identity development translated into career satisfaction. Settings that valued nursing expertise and provided autonomy in clinical decision-making particularly enhanced the satisfaction benefits of strong professional identity.

3.4 Longitudinal Trajectories and Outcomes

Over the 24-month study period, participants who maintained or developed integrated identity networks showed stable or improving satisfaction scores, while those with declining identity coherence experienced corresponding decreases in satisfaction. Early career nurses demonstrated the most dynamic identity development, with satisfaction levels closely tracking identity integration progress.

Turnover analysis revealed that professional identity factors predicted retention beyond traditional satisfaction measures. Nurses with fragmented identity networks were 3.2 times more likely to leave their positions, even when reporting moderate satisfaction scores. Identity network stability emerged as a stronger predictor of retention than momentary satisfaction assessments.

4 Conclusion

This research makes several significant contributions to understanding the relationship between professional identity and career satisfaction in nursing. Methodologically, we introduced a novel computational framework that captures the complexity and dynamism of professional identity development. By integrating natural language processing with network analysis, we moved beyond static assessments to model how identity components interact and evolve over time.

Substantively, our findings establish professional identity as a crucial determinant of career satisfaction, explaining variance beyond traditional extrinsic factors. The identification of distinct identity profiles provides a nuanced understanding of how professional self-concept influences work experience. The strong

association between identity integration and satisfaction suggests that supporting coherent professional identity development represents a powerful strategy for enhancing nursing workforce well-being and retention.

Several implications for healthcare organizations emerge from these findings. First, professional identity development should be recognized as an ongoing process requiring intentional support throughout a nurse's career. Second, organizational environments that foster identity integration through mentorship, reflective practice, and professional autonomy can enhance both satisfaction and retention. Third, assessment of professional identity factors may provide early warning indicators of turnover risk, enabling proactive intervention.

This study has several limitations worth noting. The sample, while diverse, may not represent all nursing contexts equally. The computational methods, though innovative, require validation across different cultural and healthcare settings. Future research should explore how digital interventions might support professional identity development and examine identity-satisfaction relationships in other healthcare professions.

In conclusion, this research demonstrates that professional identity represents a powerful lens through which to understand and enhance nursing career satisfaction. By developing methods to quantify and analyze this complex psychological construct, we provide new tools for supporting the nursing workforce during a period of unprecedented challenges and opportunities in healthcare.

References

Benner, P., Sutphen, M., Leonard, V., Day, L. (2010). *Educating nurses: A call for radical transformation*. Jossey-Bass.

Cowin, L. S., Johnson, M., Wilson, I., Borgese, K. (2013). The psychometric properties of five Professional Identity measures in a sample of nursing students.

Nurse Education Today, 33(6), 608-613.

Cruess, R. L., Cruess, S. R., Boudreau, J. D., Snell, L., Steinert, Y. (2014). Reframing medical education to support professional identity formation. *Academic Medicine*, 89(11), 1446-1451.

Fagermoen, M. S. (1997). Professional identity: Values embedded in meaningful nursing practice. *Journal of Advanced Nursing*, 25(3), 434-441.

Johnson, M., Cowin, L. S., Wilson, I., Young, H. (2012). Professional identity and nursing: contemporary theoretical developments and future research challenges. *International Nursing Review*, 59(4), 562-569.

Kramer, M. (1974). *Reality shock: Why nurses leave nursing*. Mosby.

Mills, B., Cruz, M., Simmons, T. (2023). Computational approaches to professional identity analysis in healthcare. *Journal of Advanced Nursing*, 79(4), 1125-1137.

Ohlen, J., Segesten, K. (1998). The professional identity of the nurse: concept analysis and development. *Journal of Advanced Nursing*, 28(4), 720-727.

Takase, M. (2010). A concept analysis of turnover intention: Implications for nursing management. *Collegian*, 17(1), 3-12.

Willetts, G., Clarke, D. (2014). Constructing nurses' professional identity through social identity theory. *International Journal of Nursing Practice*, 20(2), 164-169.