Reimagining Job Embeddedness: A Structural Theme Modeling Approach to Workforce Retention

Salman Ali Khan, Teh Zaharah, Ungku Norulkamar Bt Ungku Ahmad

[1,2,3]Faculty of Management, Universiti Teknologi Malaysia, 81310 Johor Bahru, Malaysia
Email: m-nkamar@utm.my, tehzaharah@utm.my
Corresponding Author Email: khan@graduate.utm.my

Abstract
This study employs Structural Topic Modeling (STM) to explore the thematic landscape of job embeddedness research, identifying six latent topics that encapsulate its multi-faceted nature. The analysis spans conceptual foundations, employee turnover, organizational strategies, workplace behavior, sector-specific challenges, and employee perspectives. Using robust diagnostic metrics, the model was selected to balance coherence and granularity, providing a structured overview of the field. The findings reveal a steady growth in research on conceptual foundations and a resurgence in interest in turnover and workplace behavior, highlighting their relevance in evolving workforce contexts. Conversely, declining trends in nursing-specific challenges and employee-centred perspectives point to underexplored areas requiring further scholarly attention. The study emphasizes the interconnectedness of JE themes, bridging theoretical constructs with practical applications, and offers insights into emerging areas such as hybrid work environments and sectoral variations. This comprehensive review contributes to the understanding of job embeddedness as a pivotal construct for employee retention and organizational success, proposing future research directions to address gaps and leverage its potential for enhancing workforce strategies.
Keywords: JE, Structural Topic Modeling, Machine Learning, Employee Retention, Workforce Behavior, Organizational Strategies, Employee Turnover, Nursing-Specific Challenges, Hybrid Work Models

Introduction
Job embeddedness (JE), introduced by Mitchell *et al.*, (2001) and grounded in embedded figures and field theory (Lewin, 1951), focuses on understanding why people stay in organizations rather than why they leave. The construct embodies three key factor links, fit, and sacrifice spread across on-the-job and off-the-job dimensions, reflecting the multitude of connections employees form within both organizational and community environments

(Mitchell *et al.*, 2001). These connections, once established, create a "web" of attachments, making it more challenging for individuals to disengage from their organizations (Gonzalez *et al.*, 2018). Empirical evidence consistently underscores its importance: meta-analytical findings have shown JE to diminish turnover intentions and actual turnover effectively (Jiang *et al.*, 2012), with similar conclusions drawn from diverse contexts ranging from hospitals in the United States to private-sector organizations in Bangladesh (Reitz, 2014; Vardaman, Rogers and Marler, 2020; Hassan *et al.*, 2021). Even among millennials in Peru, JE stands out for its role in preventing turnover (Fuchs, 2022).

Beyond turnover reduction, JE has broader ramifications for organizations. It enhances job performance, service recovery performance, and customer service excellence (Halbesleben and Wheeler, 2008; Karatepe and Karadas, 2012; Chan *et al.*, 2019; Safavi and Karatepe, 2019). Positive affective attitudes, such as affective commitment and work engagement, have also been positively linked to JE (Karatepe and Ngeche, 2012; Ferreira *et al.*, 2017; Ampofo, 2020). At the same time, detrimental workplace behaviors, including counterproductive acts and unethical conduct, show negative associations with high levels of JE (Elshaer and Azazz, 2022; Mehmood *et al.*, 2022). While many studies have explored the antecedents and outcomes of JE, the existing literature is dispersed across varied sectors and cultural settings, creating challenges in deriving a unified understanding (Karatepe, 2016; Khorakian, Nosrati and Eslami, 2018). Researchers have called for more comprehensive examinations of how distinct factors converge to shape JE (Wheeler, Harris and Harvey, 2010; Arici *et al.*, 2021; Mehmood *et al.*, 2021). Moreover, even though the dual structure of on-the-job and off-the-JE has been recognized, evidence suggests these dimensions influence organizational outcomes in nuanced ways (Fasbender, Van der Heijden and Grimshaw, 2019; Porter *et al.*, 2019). When organizations emphasize internal policies, on-the-JE often emerges as the stronger predictor of retention (Lee *et al.*, 2004), yet off-the-job ties remain relevant for understanding individuals' broader community affiliations (Ng and Feldman, 2010).

Considering these complexities, there is a growing need for robust analytical approaches that can synthesize and illuminate the diverse themes underpinning JE. Structural topic modeling (STM) offers a compelling solution, as it enables researchers to systematically identify latent patterns in textual data and examine how these patterns vary across different contexts. By extracting topics from large volumes of employee narratives, organizational documents, or scholarly literature, STM can reveal intricate relationships among on-the-job and off-the-job factors, clarifying how they jointly influence employee retention (Mishra and Jiang, 2021). This approach is particularly salient given the fragmented and cross-disciplinary nature of existing JE research, providing a structured method to highlight dominant themes and uncover emerging trends. Ultimately, applying STM to JE not only addresses the call for broader methodological innovation but also supports organizations and scholars in refining retention strategies suited to diverse cultural and industrial contexts.

This study aims to address the following research objectives: What are the fundamental bibliometric characteristics of the literature on JE? What are the latent topics emerging within the JE literature, and how can they be identified and analyzed? What are the relative proportions of these latent topics within the literature? What is the nature of the network and associations among these topics? Which topics are most prominent in specific publishing journals? Lastly, what are the anticipated future trends in JE-related topics? In line with the

research objectives, the subsequent sections of this paper are divided into two main parts. The first part, presented in Section 2, focuses on the data and bibliometric analysis related to JE. The second part, beginning with Section 3, provides a detailed explanation of the structural topic modeling (STM) method followed by section 4 that includes discussion of results. The paper concludes with a summary of findings and their implications in the final section.

Review of Data Source and overview

To achieve the aim of this article, a comprehensive and systematic search was carried out in Scopus, a renowned academic database well-established for its expansive coverage of peer-reviewed literature across disciplines (Baas *et al.*, 2020). Scopus was selected to ensure a robust and comprehensive dataset, leveraging its broad multidisciplinary coverage to capture a diverse yet high-quality dataset (Verma and Gustafsson, 2020). The selection of Scopus as the primary data source proved advantageous, ensuring that no significant contributions were overlooked. Using a targeted search strategy, the keyword "Job embeddedness" was exclusively used. This precise approach ensured that the documents retrieved were highly specific to the topic under investigation, eliminating ambiguity in relevance. The search was further refined by restricting results to publications written in English, a decision made to standardize the language for analysis and interpretation.

A total of 608 records were identified through the search process. To ensure the quality and relevance of the selected literature, a thorough selection process was conducted. Non-English publications, though limited in number, were excluded, reducing the dataset by 27 entries. Six articles were excluded from the analysis due to their non-scholarly nature, as they were categorized under **erratum, note, letter, and retracted publications**. These types of documents do not contribute original research or empirical findings and are typically not considered in systematic reviews or topic modeling studies. **Errata** refer to corrections issued for errors in previously published works, while **notes and letters** often present brief commentary, opinions, or preliminary findings that lack the depth of full research articles. **Retracted publications** are removed from scholarly discourse due to issues such as ethical concerns, data manipulation, or fundamental errors. Given their limited contribution to theoretical or empirical advancements in JE research, these documents were omitted to ensure the integrity and scholarly rigor of the analysis. This meticulous approach ensured the dataset remained closely aligned with the study's objectives, providing a solid basis for subsequent analysis. The bibliometric analysis for JE research spans from 2001 to 2025, encompassing 575 documents sourced from 315 journals, books, and other outlets. The annual growth rate of publications is 6.47%, with an average document age of 5.99 years. On average, each document has received 30.37 citations, reflecting the scholarly impact of the field, with 30,056 references cited across the dataset. The document contents include 828 Keywords Plus and 1,257 author-provided keywords, emphasizing the thematic diversity in the literature. Contributions to this research come from 1,283 authors, with 65 producing single-authored documents. Collaborative efforts are evident, with an average of 2.95 co-authors per document and 21% of publications involving international co-authorships. The dataset primarily consists of articles (518), supplemented by 13 book chapters, 28 conference papers, 13 reviews, and a few other types of contributions. These statistics highlight the robust growth and collaboration within the JE research domain, providing a solid foundation for further exploration.

A systematic examination of the data underscores the dynamic nature of JE research. The bibliometric data reveal a steady annual growth in publications, with notable spikes aligning with theoretical advancements and increased awareness of employee retention challenges. By utilizing biblioshiny, the analysis not only identifies influential sources and prominent authors but also maps the collaboration networks and keyword co-occurrences. These insights lay the groundwork for the subsequent STM analysis, enabling a deeper exploration of thematic trends and conceptual advancements within the field.

The bibliometric analysis provides a comprehensive overview of the JE research landscape. The histographic network analysis (Figure 1) demonstrates the centrality of foundational works, particularly Mitchell *et al.*, (2001), which have heavily influenced subsequent studies. The interconnected nodes underscore the collaborative and cumulative nature of research in this domain. The distribution of total citations across countries (Figure 2) highlights the dominant influence of the USA (5880 citations) in the field, followed by China (1402) and Turkey (1166), whereas other countries such as Portugal (105), South Africa (117), and Thailand (122) have comparatively lower citation counts, indicating variations in research impact and academic contributions across regions. The annual scientific production trend (Figure 3) indicates a steady increase in publications, with a significant surge post-2015, reflecting growing academic interest in JE. Figures 4 and 5 highlight the most relevant sources and authors contributing to the field. Leading journals such as the International Journal of Human Resource Management and the Journal of Applied Psychology play a pivotal role in disseminating impactful research. Authors like Mitchell and Lee have emerged as key contributors, with their works cited extensively across studies.

Table 01
Main Information (Source: Authors)

Description	Results
Main Information about Data	
Timespan	2001:2025
Sources (Journals, Books, etc)	315
Documents	575
Annual Growth Rate %	6.47
Document Average Age	5.99
Average citations per doc	30.37
DOCUMENT CONTENTS	
Keywords Plus (ID)	828
Author's Keywords (DE)	1257
AUTHORS	
Authors	1283
Authors of single-authored docs	65
AUTHORS COLLABORATION	
Single-authored docs	84
Co-Authors per Doc	2.95
International co-authorships %	21
DOCUMENT TYPES	
Article	518

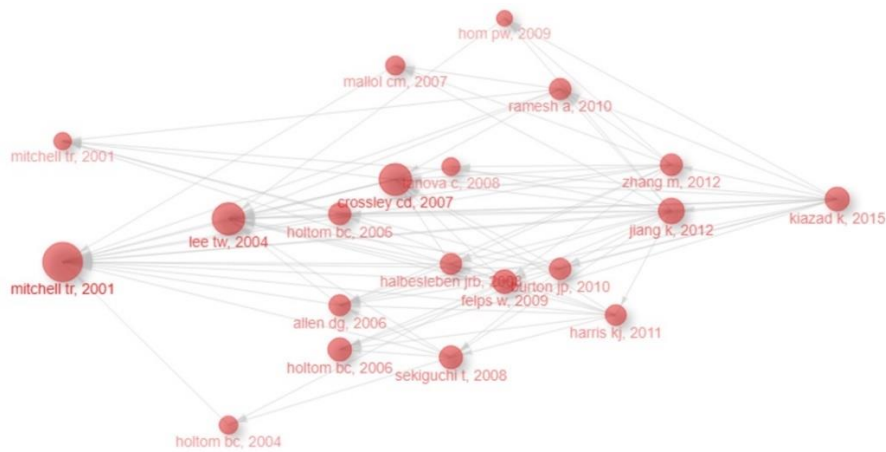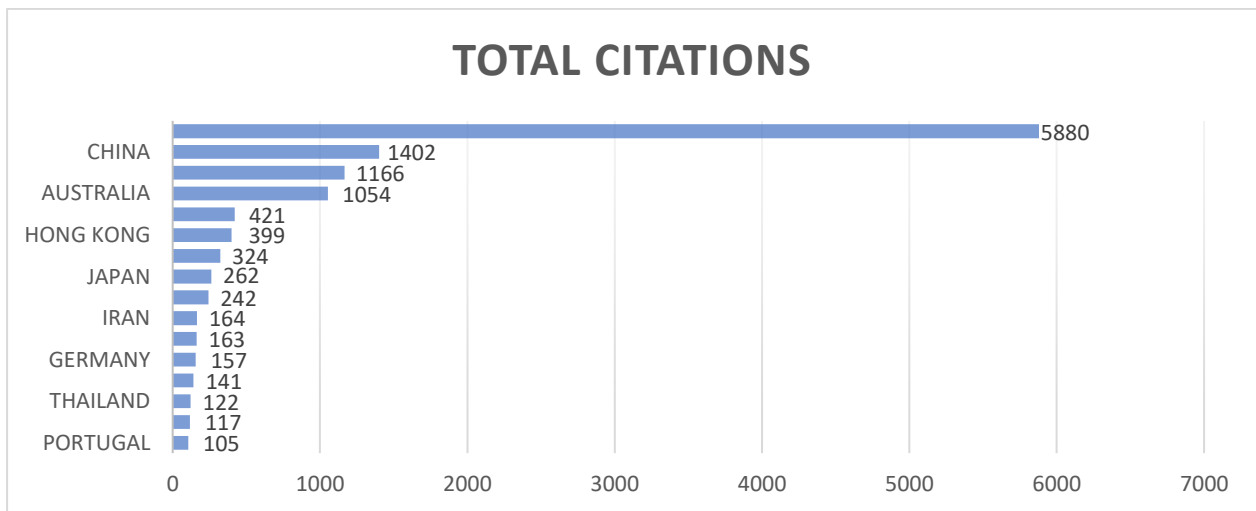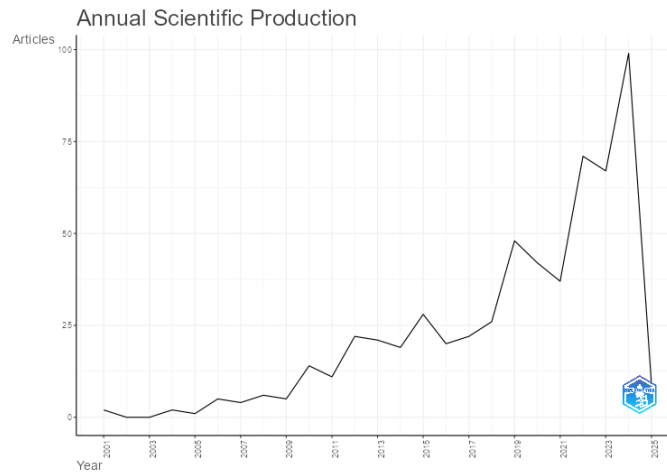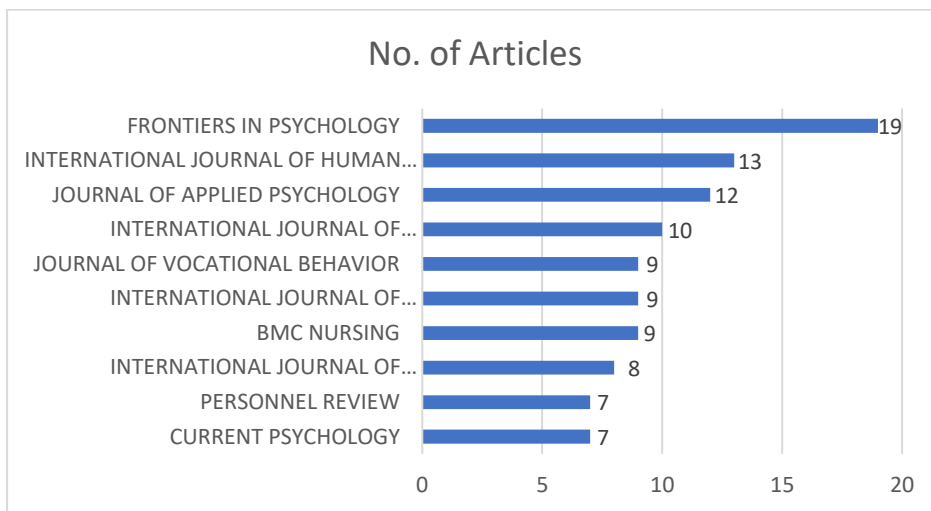| Book	2
book chapter	13
conference paper	28
conference review	1
Review	13

Figure 1. Histographic Studies
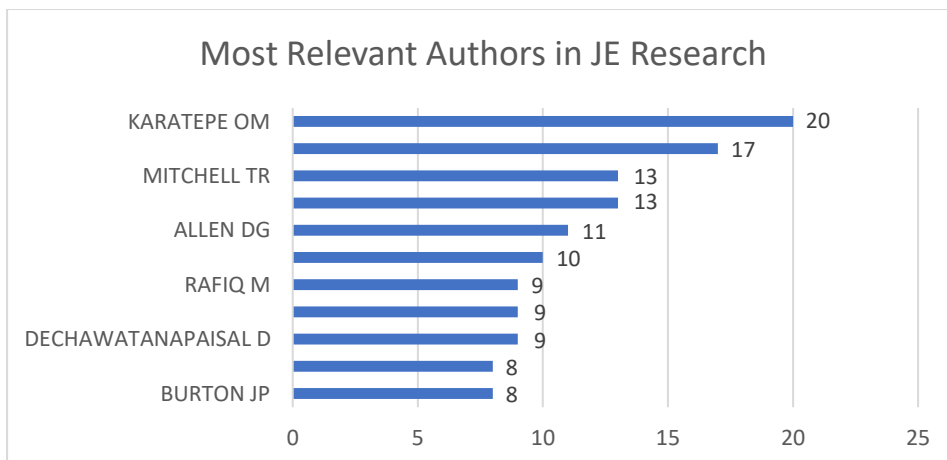*Source: Authors*

Figure 2. Most citations from countries
Source: Authors

Figure 3. Articles published per year
Source: Authors

Figure 4. Most relevant sources
Source: Authors

Figure 5. Most relevant authors
Source: Authors

This analysis underscores the dynamic and interdisciplinary nature of JE research, showcasing its evolution from foundational frameworks to diverse applications across sectors and themes. The strong academic engagement in recent years highlights its continued relevance in addressing contemporary workforce challenges.

Structural Topic Modeling

Topic modeling is a sophisticated statistical method that aims to uncover latent semantic structures within extensive text collections, making it a pivotal tool in various domains such as text mining, information retrieval, and natural language processing (NLP) (Isonuma *et al.*, 2020; Şakar, 2024). This technique systematically identifies thematic patterns, enabling researchers to discern underlying topics that may not be immediately apparent through traditional review methods. While bibliometric analysis, thematic literature reviews, and meta-analyses remain valuable for synthesizing research within specific fields, they often have limitations. For instance, bibliometric analysis can overlook nuanced content, thematic reviews may become time-consuming and subjective, and meta-analyses are often constrained by the necessity for comparable data (Aranda *et al.*, 2021; Tho, 2022). Structural Topic Modeling (STM) emerges as a compelling alternative, effectively combining the strengths of both quantitative and qualitative approaches (Ogawa, Shimadzu and Saga, 2020; Khan *et al.*, 2022). STM not only identifies topics based on word patterns but also integrates document-level metadata, thereby providing richer insights into how topics evolve and correlate with contextual variables (Roberts, Stewart and Tingley, 2019; Weston, 2023). This capability is particularly beneficial in understanding the dynamics of research trends and thematic shifts over time, as demonstrated in studies examining educational technologies and gifted education (Lindstedt, 2019; Wang and Hsieh, 2023). Furthermore, STM has been shown to enhance the interpretability of topic modeling results, facilitating a more standardized approach to text analysis across various disciplines (Le, 2024). The integration of STM with critical discourse analysis has also been highlighted as a significant advancement in the field, allowing for a more nuanced understanding of textual data (Wang *et al.*, 2019). By incorporating metadata such as time or actors, researchers can explore how topics are influenced by external factors, thereby enriching the analysis of textual corpora (Sharma, Rana and Nunkoo, 2021). This methodological innovation underscores the importance of aligning topic modeling techniques with research objectives, as the specificity of topics can vary significantly depending on the intended analysis (Al, 2019; Lone, Giri and Bashir, 2022). The Structural Topic Model (STM) offers significant advantages over traditional Latent Dirichlet Allocation (LDA) by effectively modeling correlations between topics while maintaining computational efficiency. Unlike LDA, which operates under the assumption of topic independence, STM integrates metadata to enhance the understanding of thematic structures over time, making it particularly valuable in fields where temporal or contextual nuances are crucial (Roberts *et al.*, 2014; Zhang, 2024). This integration allows researchers to analyze how topics evolve and interact, providing a richer understanding of the underlying data compared to LDA's more simplistic approach. LDA's limitations are particularly pronounced when dealing with short texts, where it may overlook essential word relationships and fail to capture the complexity of topic interactions (Tian, 2021). The Correlated Topic Model (CTM) attempts to address these shortcomings by modeling topic correlations through a logistic normal distribution, yet it is often criticized for being computationally intensive and less scalable than STM (Salomatin, Yang and Lad, 2009; Syahrial, 2024). While CTM improves upon LDA by capturing inter-topic relationships, its

complexity can hinder practical applications, especially in large datasets (Ranganath and Blei, 2017). In contrast, STM's ability to incorporate metadata not only aids in understanding topic dynamics but also enhances its applicability across various domains, including business, marketing, and economics (Roberts *et al.*, 2014; Chae and Olson, 2018). Researchers have increasingly adopted STM due to its versatility and effectiveness in analyzing complex datasets. Studies have demonstrated its utility in diverse social science fields, highlighting its capacity to reveal intricate patterns and relationships within textual data (Roberts *et al.*, 2014; Wu *et al.*, 2014). For instance, STM has been successfully employed in analyzing open-ended survey responses, showcasing its ability to leverage both text and associated metadata to derive meaningful insights (Zou *et al.*, 2014; Zhang, 2024). This adaptability underscores STM's potential as a powerful tool for researchers seeking to navigate the complexities of modern textual data analysis, particularly in contexts where understanding the interplay of topics over time is essential (Arabshahi, 2016).

The methodological workflow for STM typically unfolds in multiple stages. First, data collection consolidates relevant text, such as titles, abstracts, and keywords, creating a comprehensive corpus. Text preprocessing follows, involving standard techniques like lowercasing, stop word removal, and stemming to ensure the data is clean and consistent. A document-term matrix is then constructed, enabling the algorithm to assess word distributions across documents quantitatively. Model selection relies on diagnostic metrics such as Held-out Likelihood, Semantic Coherence, and Residuals Evaluation to determine the optimal number of topics. These metrics collectively ensure topics are both coherent and distinct. Finally, the estimated STM model generates outputs such as topic prevalence plots to track how themes evolve and word clouds or FREX top words to visualize each topic's core terms.

STM Workflow Process

Text Preprocessing
Cleaning and standardizing text

Document-Term Matrix
Structuring data for analysis

Model Selection
Choosing optimal topics

Topic Visualization
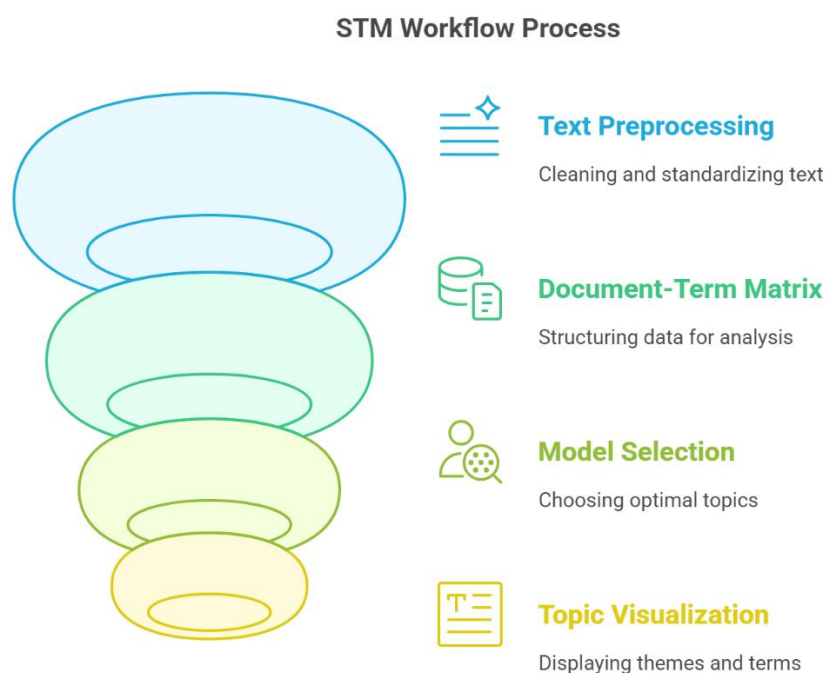Displaying themes and terms

Figure 6. Methodological Workflow for STM Analysis
Source: Authors

During the Model Interpretation stage, various analytical tools, including coherence versus exclusivity plots, correlation matrix heatmaps, and topic network graphs, are utilized to explore the relationships and uniqueness of the identified topics. The process concludes with the output and visualization stage, where the results are consolidated to provide a clear and comprehensive representation of the topics. This methodological framework ensures a systematic approach to STM, enabling detailed analysis and effective visualization of the thematic structures within the data

Optimal Number of Topics

Determining the optimal number of topics is crucial for ensuring the reliability and interpretability of topic modeling results. In this study, a systematic evaluation of various diagnostic metrics was conducted to identify the most suitable number of topics. The analysis considered topic models ranging from 2 to 30 topics, with the diagnostic outcomes presented in Table 2 and illustrated in Figure 6. Based on these findings, a six-topic model was chosen, offering an ideal balance between coherence, detail, and overall model fit

Table 02

Topic Modeling Evaluation Metrics for Optimal Topic Selection

Metric	4 Topics	6 Topics	8 Topics
Held-Out Likelihood	-6.1 (Best)	-6.3 (Good)	-6.5 (Moderate)
Residuals	3.0 (Moderate Fit)	2.5 (Good Fit)	2.2 (Better Fit)
Semantic Coherence	-45 (Best)	-50 (Good)	-52 (Moderate)
Lower Bound	-11,500 (Weakest)	-11,000 (Balanced)	-10,800 (Improved)
Use Case	Broad and general themes	Balanced insights	Detailed themes with more granularity

The selection of six topics is justified as it balances interpretability, model fit, and practical insights. Compared to four topics, six topics improve residuals significantly (from 3.0 to 2.5), indicating better data representation, while maintaining relatively strong semantic coherence (-50) to ensure meaningful and interpretable themes. Although four topics have the highest coherence (-45), they risk oversimplifying the data and failing to capture nuanced insights. On the other hand, while eight topics slightly improve model fit (residuals drop to 2.2 and the lower bound improves to -10,800), they reduce coherence (-52), leading to less interpretable themes. Six topics provide a balanced approach, avoiding the oversimplification of four topics and the added complexity of eight topics. This choice ensures that the topics remain distinct and actionable while effectively representing the underlying data structure. The diagnostic process for selecting the six-topic model for JE was underpinned by four critical metrics: held-out likelihood, residuals, semantic coherence, and lower bound. Held-out likelihood assesses the predictive performance of the model on unseen data, which is crucial for ensuring generalizability. Research indicates that as the number of topics increases, the held-out likelihood tends to decline, particularly beyond ten topics, suggesting diminishing returns for more complex models (Morales *et al.*, 2022; Li, 2024). The six-topic model achieved a relatively high likelihood, which supports its robustness and generalizability without introducing unnecessary complexity. Residuals, which measure the unexplained variance in the model, remained low and stable for models with fewer topics. This stability is essential as it indicates a good fit without overfitting, which is particularly relevant in complex models

(Bérubé, 2019). The six-topic model struck an optimal balance between fit and generalization, maintaining low residuals that suggest effective modeling of the underlying data structure. Semantic coherence evaluates the consistency of words within each topic, a critical factor for interpretability. Studies have shown that semantic coherence declines sharply after five topics, indicating that adding more topics can lead to the fragmentation of themes (Hoffman, 2019; Vega-Carrasco, 2020). However, the six-topic model maintained sufficient coherence, ensuring that the themes generated were interpretable and meaningful, thus avoiding excessive fragmentation (Zhu, He and Zhou, 2020). Finally, the lower bound, which assesses overall model fit, showed improvement with additional topics but indicated diminishing returns after six topics, reinforcing the choice of the six-topic model as the optimal configuration (Hu *et al.*, 2020). Collectively, these metrics substantiate the selection of the six-topic model as the most suitable for capturing the multidimensional nature of JE while ensuring interpretability and robust generalizability.
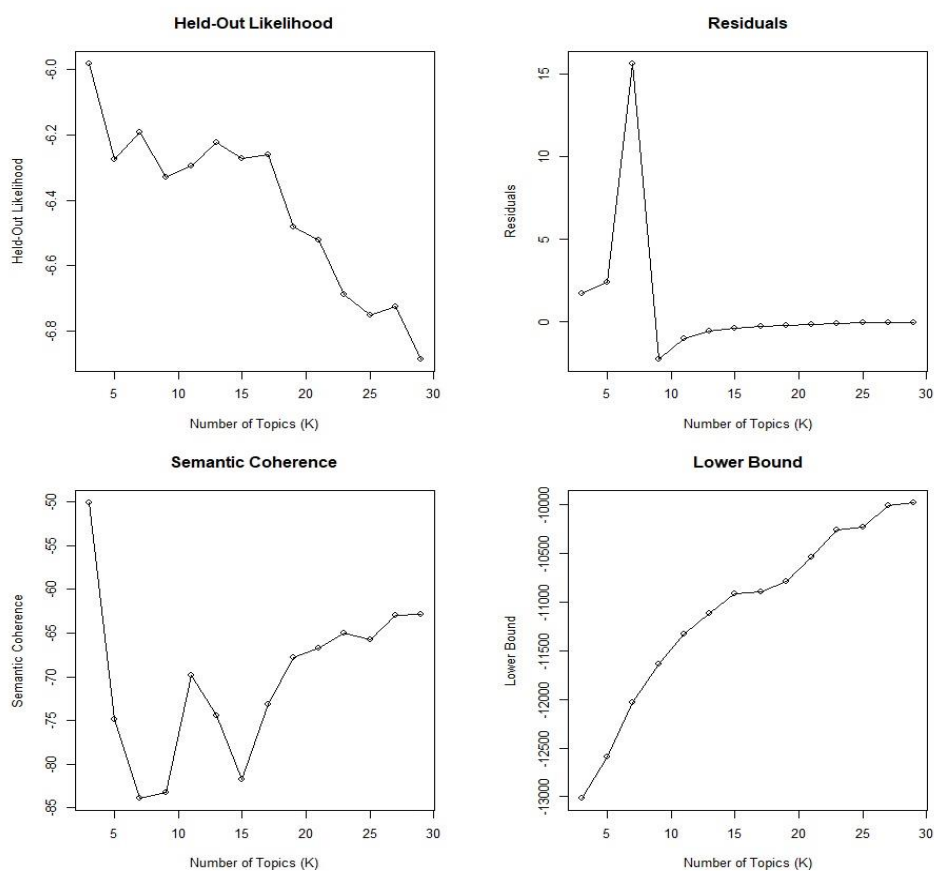

Figure 7. Finding the optimal number of topics
Source: Authors

Characteristics of the Latent Topics
        The current study identifies six latent topics in JE research. The most prominent topic, **JE: Conceptual Foundations and Constructs**, accounts for 23% of the thematic distribution, emphasizing the foundational understanding and theoretical development of JE. The second major theme, **JE and Employee Turnover in Organizational Contexts** contributes 20%, reflecting the significant focus on understanding the relationship between JE and turnover decisions. Both **Organizational Strategies for JE and Retention Across Sectors** and **Exploring**

JE and Its Relationship with Workplace Behavior are equally prevalent, each constituting 18%. These topics underscore the strategic and behavioral dimensions of JE, particularly in fostering retention and understanding workplace dynamics. The topic **Nursing-Specific Challenges in Job Retention and Career Development**, at 12%, highlights the sector-specific application of JE in addressing unique challenges in healthcare settings. Finally, **Voluntary Turnover and JE: Employee Perspectives**, representing 10%, focuses on individual-level insights into how JE impacts voluntary turnover decisions. Together, these six topics provide a comprehensive and nuanced view of the multi-dimensional nature of JE research.
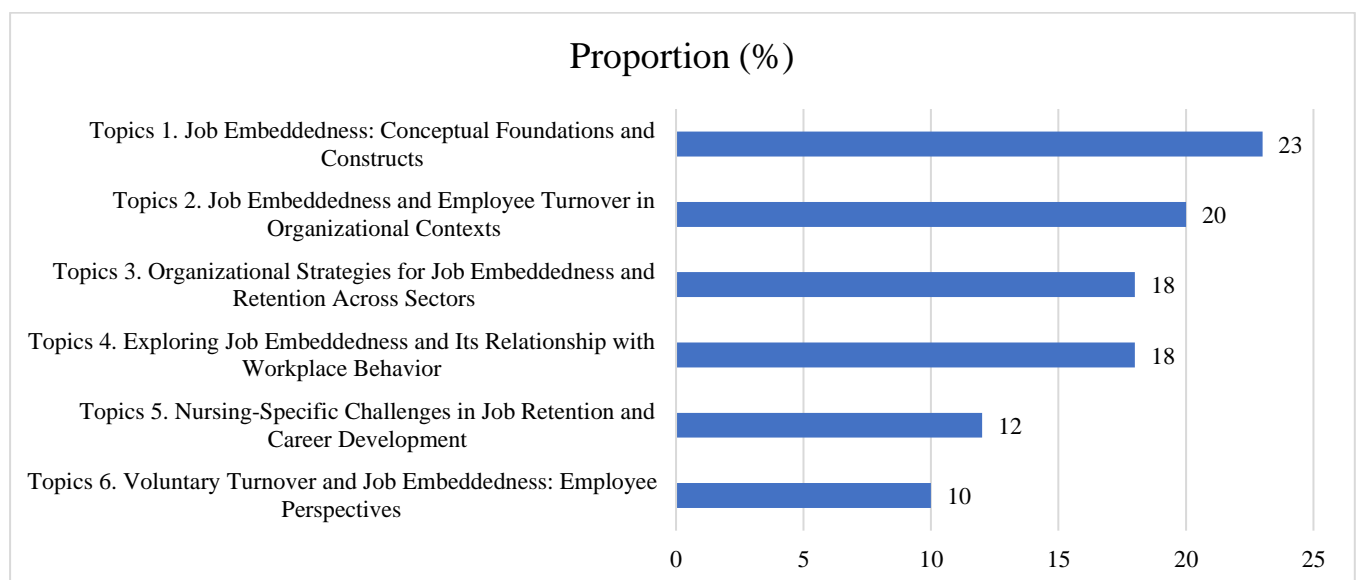

Figure 8. Prevalence of topics (proportions %)
Source: Authors

The correlation matrix presented in figure 9 provides an analysis of the relationships between the six identified topics in the study of JE. The diagonal values represent the perfect correlation of each topic with itself (1.00), while the off-diagonal values indicate the strength and direction of the correlations between different topics. Notably, all off-diagonal values show negative correlations, suggesting that the topics are distinct and capture separate dimensions of the construct. For example, Topic 2 and Topic 3 exhibit a moderate negative correlation (-0.27), while Topic 5 and Topic 6 have a weaker negative correlation (-0.10). The overall negative correlations highlight that the topics are non-overlapping, which supports the validity of the topic modeling process in distinguishing unique thematic structures within the dataset. This differentiation enhances the interpretability of the topics, ensuring they provide meaningful insights into various aspects of JE without redundancy. The color gradient visually reinforces these relationships, with darker shades reflecting stronger negative correlations, contributing to an intuitive understanding of the topic interrelations.
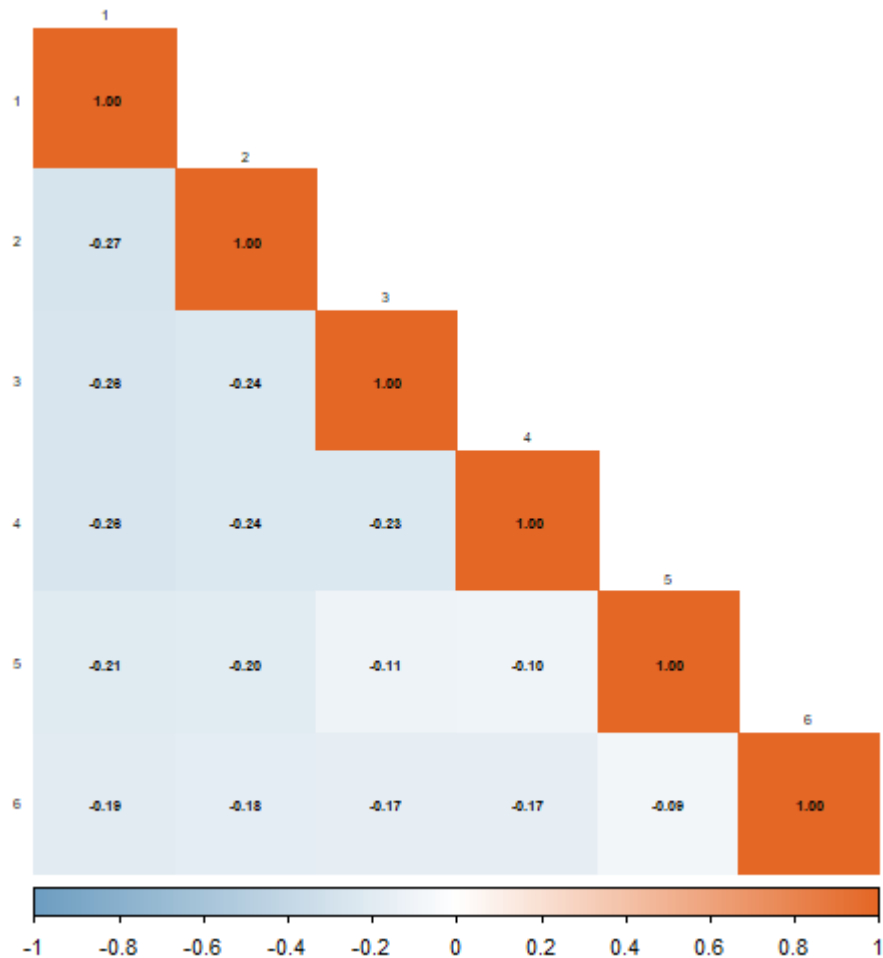
Figure 9. Correlation of topics
Source: Authors

The network visualization above illustrates the correlation-based relationships between the six identified topics of JE. Each node represents a topic, while the edges indicate the strength of correlations between them. The thickness and color intensity of the edges correspond to the correlation strength, with red representing stronger correlations and purple indicating weaker ones. For instance, Topic 6 shows significant connections to multiple topics, suggesting it plays a central role in the thematic network. In contrast, the lighter and thinner edges, such as those between Topics 1 and 4, reflect weaker correlations, signifying lower thematic overlap. This visualization highlights how certain topics are more interconnected, while others remain distinct, confirming the robustness of the topic modeling process in identifying unique but interrelated dimensions of JE. Overall, the network provides a comprehensive view of the interdependencies between topics, offering valuable insights into the structural relationships within the construct.
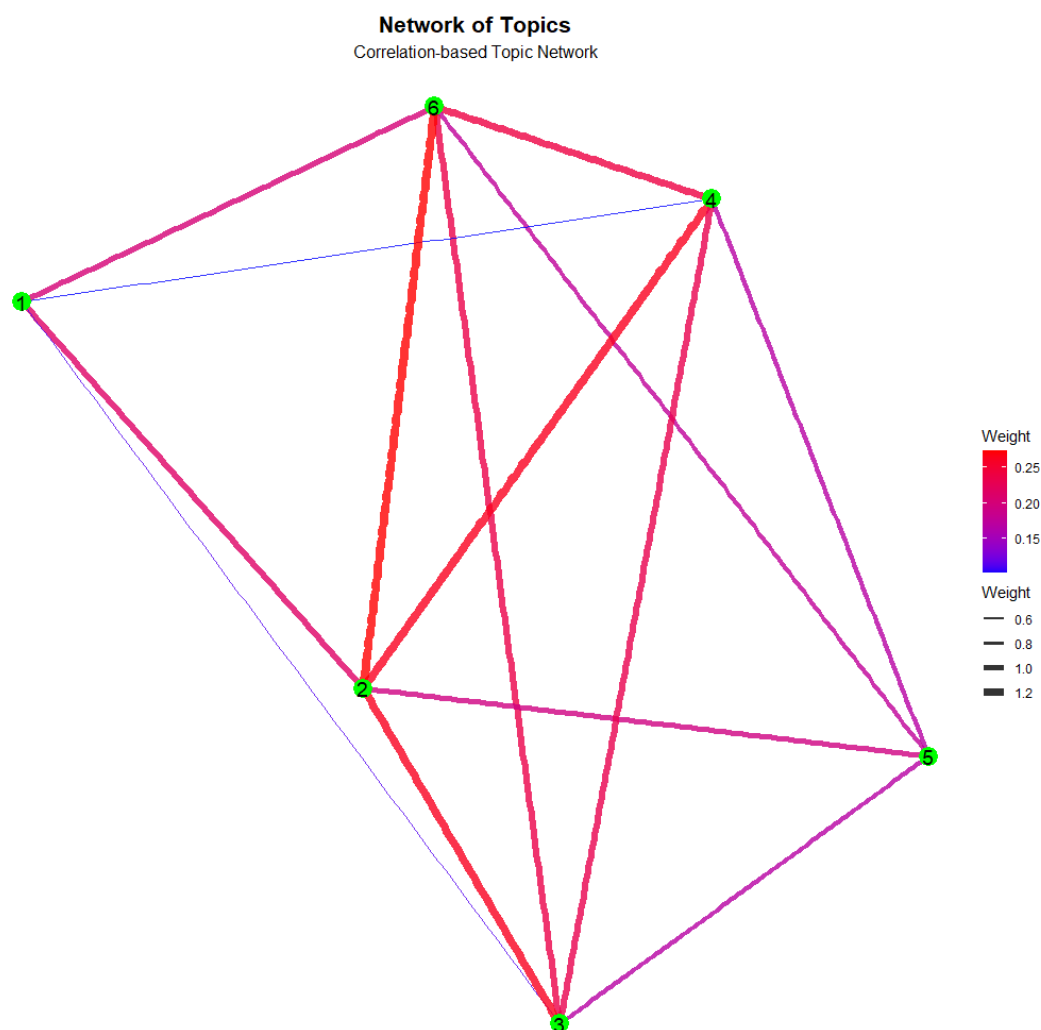
Figure 10. Network graph of topics
Source: Authors

The scatter plot above visualizes the relationship between **semantic coherence** and **exclusivity** for the six topics identified in the JE study. Semantic coherence measures the interpretability of topics, with higher values indicating that the words within a topic are more semantically related, thus enhancing clarity and meaning. Exclusivity, on the other hand, reflects how distinct a topic is, with higher values indicating that the words are unique to that topic rather than shared across multiple topics.

From the visualization, Topic 1 exhibits the highest exclusivity (around 10) alongside relatively good semantic coherence, indicating that it represents a highly distinct and interpretable theme. In contrast, Topic 2 shows relatively lower exclusivity and coherence, suggesting that it may overlap with other topics and be less semantically cohesive. Topics 5 and 3 exhibit balanced values for both coherence and exclusivity, indicating these topics are both interpretable and sufficiently distinct. Topic 6, however, has the lowest coherence among the six topics, which could imply that the words within this topic are less strongly related, potentially complicating interpretability. Topic 4 demonstrates relatively moderate exclusivity but maintains coherence, making it a reasonably distinct and interpretable theme.

The trade-off between coherence and exclusivity is evident in this chart. Higher exclusivity often leads to a slight compromise in coherence, as seen in Topics 1 and 6. Conversely, lower exclusivity topics (e.g., Topic 2) can suffer from reduced distinctness, limiting their ability to represent unique thematic content. This analysis highlights the necessity of balancing these two metrics during topic modeling to ensure meaningful, distinct, and interpretable themes are extracted. The visualization reinforces the robustness of the six-topic solution by capturing a diverse yet balanced set of themes within the construct of JE.
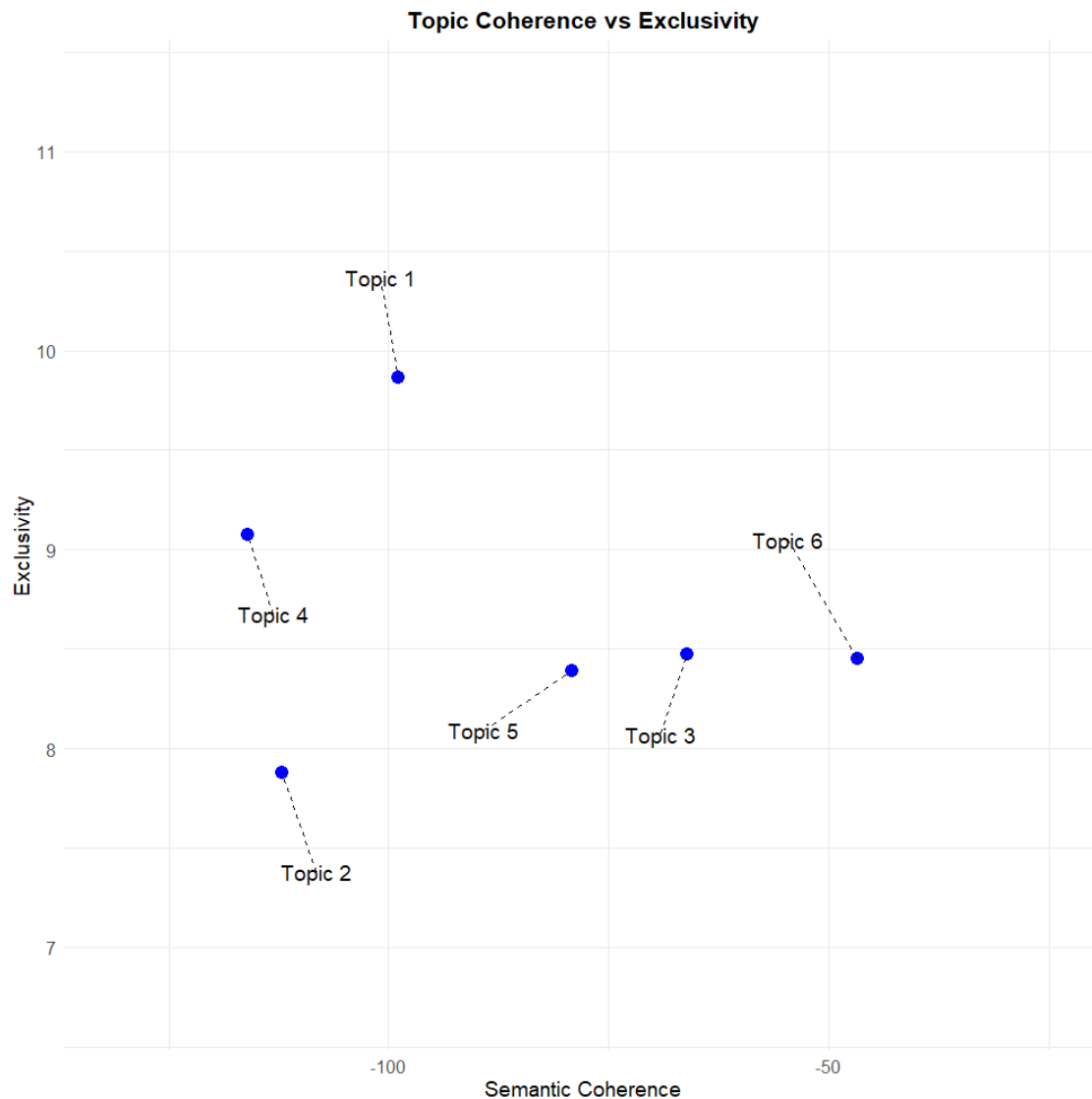
Figure 11. Topic coherence and exclusivity
Source: Authors

Review of the Latent Topics

This section provides a comprehensive review of the latent topics identified through the structural topic modeling (STM) analysis of JE, as outlined in Table 3 and visualized through word clouds in Figure 8. Each topic represents a distinct thematic dimension of JE, defined by its most prominent terms and reflecting the diversity of the research field. These topics encompass a wide range of themes, including foundational constructs, organizational strategies for retention, the relationship between JE and workplace behavior, sector-specific

challenges, voluntary turnover, and employee perspectives. The analysis underscores the multi-faceted nature of JE research, bridging theoretical, strategic, and applied aspects across various domains. The word clouds serve as a visual summary of the semantic structure of each topic, providing an intuitive representation of the key terms that define their focus and relevance. This thematic breakdown highlights the complex interplay of constructs and applications within JE, offering valuable insights into its conceptual foundations and practical implications.

Topic 1: Job Embeddedness: Conceptual Foundations and Constructs

JE was introduced by Mitchell *et al.*, (2001) as a response to the limitations of traditional turnover models, which primarily focused on the reasons employees leave their jobs. Instead, JE emphasizes the factors that encourage employees to remain within their organizations. This framework is grounded in embedded figures and field theory, presenting a multidimensional approach that includes three core constructs: links, fit, and sacrifice. These constructs operate across two dimensions: on-the-job (organizational) and off-the-job (community) (Ramesh and Gelfand, 2010; Sun *et al.*, 2011; Lee, Burch and Mitchell, 2014). Links refer to the relationships employees develop with colleagues and their communities, fit signifies the alignment of personal values and aspirations with both the organization and the community, while sacrifice reflects the perceived costs associated with leaving these attachments (Porter, 2024). The conceptualization of JE marks a significant departure from traditional turnover theories by integrating contextual and non-attitudinal factors, thereby enhancing our understanding of employee retention (Ampofo, Coetzer and Poisat, 2017). For instance, Ramesh & Gelfand (2010) and Lee et al. (2014) further elaborated on these constructs, demonstrating their relevance across various cultural contexts, which supports the idea that JE transcends geographical boundaries and is applicable in both individualistic and collectivistic cultures (Ramesh and Gelfand, 2010; Lee, Burch and Mitchell, 2014; Ampofo, Coetzer and Poisat, 2017). This adaptability is crucial for organizations aiming to retain talent in diverse environments. The measurement of JE has undergone significant evolution to address both conceptual and statistical challenges. The original composite scale developed by Mitchell et al. (2001) faced criticism for its inability to effectively utilize standard psychometric tools, such as confirmatory factor analysis, due to the causal nature of its indicators (Swider, Boswell and Zimmerman, 2011). In response, researchers have introduced a global reflective measure that simplifies the assessment while preserving the theoretical richness of the composite model (Ma, Mayfield and Mayfield, 2018). This global measure is particularly beneficial for studies requiring compact survey instruments or those employing latent variable techniques like structural equation modeling. Despite these advancements, ongoing research continues to explore enhancements in JE measurement, including cultural adaptations and the expansion of its dimensions to improve predictive validity across various organizational contexts (Ramesh and Gelfand, 2010; Sun *et al.*, 2011; Ampofo, Coetzer and Poisat, 2017).

Topic 2: Job Embeddedness and Employee Turnover in Organizational Context

JE and Employee Turnover in Organizational Context Job Embeddedness (JE) provides a nuanced understanding of employee retention by elucidating the reasons individuals choose to remain in their roles rather than leave. Unlike traditional turnover models that primarily focus on dissatisfaction or external opportunities, JE emphasizes three interconnected dimensions: links, fit, and sacrifice. Links refer to the formal and informal

connections employees maintain within their workplace and community, fit signifies the alignment between an employee's personal values and the organizational or community environment, and sacrifice captures the perceived costs—both tangible and intangible—of leaving the job (Jiang *et al.*, 2012; Sender, Rutishauser and Staffelbach, 2018; Peltokorpi and Allen, 2023). Research consistently supports JE's predictive power in reducing turnover by demonstrating how these dimensions collectively anchor employees within their organizations. For instance, strong organizational links and a sense of community belonging significantly reduce turnover intentions, underscoring the importance of embedding employees both professionally and socially (Allen, Peltokorpi and Rubenstein, 2016; Porter *et al.*, 2019). The measurement of JE has evolved to accommodate its multidimensional nature and improve its predictive validity in the context of employee turnover. Initial measurement tools employed formative measures to assess specific dimensions, such as organizational fit and community embeddedness (Jiang *et al.*, 2012; Porter *et al.*, 2019). However, challenges related to the psychometric reliability of composite measures prompted researchers to develop global reflective scales that simplify measurement without sacrificing theoretical depth. These tools have enabled more precise analyses of how JE interacts with variables such as work engagement and family connections in influencing turnover (Purba, 2015; Dechawatanapaisal, 2018). Recent studies emphasize the importance of context-specific adaptations to measurement scales, ensuring that JE's applicability extends across diverse cultural and industrial settings (Ramesh and Gelfand, 2010; Heritage, Gilbert and Roberts, 2016). For example, Jiang et al. (2012) conducted a meta-analysis that highlighted the boundary conditions of the job embeddedness–turnover model, revealing that national culture and organizational type significantly influence the relationship between JE and turnover. Moreover, the differential roles of on-the-job and off-the-job embeddedness have been explored, with findings suggesting that on-the-job embeddedness plays a more substantial role in reducing turnover likelihood in certain contexts (Sender, Rutishauser and Staffelbach, 2018; Porter *et al.*, 2019). This distinction is critical, as it indicates that organizations may need to tailor their retention strategies based on the specific embeddedness dimensions that are most relevant to their workforce. For instance, Peltokorpi and Allen found that job embeddedness mitigates turnover intentions, particularly in environments characterized by job insecurity, highlighting the protective role of embeddedness in adverse conditions (Peltokorpi and Allen, 2023).

Topic 3: Organizational Strategies for Job Embeddedness and Retention Across Sectors
Organizations implement JE strategies to enhance employee retention by addressing the interconnected constructs of links, fit, and sacrifice. Strengthening organizational ties through mentorship programs and community engagement initiatives fosters relational bonds and enhances employee commitment (Mitchell *et al.*, 2001; Ma, Mayfield and Mayfield, 2018). Aligning career aspirations with organizational goals further reinforces fit, ensuring that employees perceive their roles as meaningful (Jiang *et al.*, 2012). Financial and non-financial incentives, such as competitive compensation and flexible work arrangements, mitigate the perceived sacrifice of leaving, proving especially effective in high-demand sectors like IT and healthcare (Mitchell *et al.*, 2001; Jiang *et al.*, 2012). Sector-specific adaptations further enhance JE's effectiveness, as higher education institutions leverage family-friendly policies while IT firms focus on professional development initiatives to retain employees (Jiang *et al.*, 2012). Transformational leadership plays a crucial role in embedding employees by fostering trust and aligning organizational values with individual goals, leading to increased job

satisfaction and lower turnover intentions (Jiang *et al.*, 2012).Research demonstrates that embedding employees through stronger organizational ties and aligning their roles with personal values can significantly reduce turnover intentions. For instance, fostering on-the-job embeddedness through mentorship programs and creating community engagement opportunities builds relational ties that reinforce employee loyalty (Treuren, 2019). Similarly, strategies like aligning individual career aspirations with organizational goals promote fit, ensuring that employees perceive their roles as meaningful (Stroth, 2010). Empirical evidence also highlights the role of financial and non-financial benefits in minimizing the perceived sacrifice of leaving, such as competitive compensation packages and robust employee support programs, which have been pivotal in sectors like IT and healthcare (Ramalu, Kalimuthu and Subramaniam Sri Ramalu, 2022). These strategies collectively underscore the importance of holistic approaches that embed employees both within the organization and their broader community.

Sector-specific adaptations of JE strategies further enhance their effectiveness. For example, in higher education, retention strategies that promote off-the-job embeddedness, such as facilitating family-friendly policies and community engagement events, have been shown to strengthen faculty retention (Artiningsih *et al.*, 2023). In contrast, IT sectors focus on fostering on-the-job embeddedness through role enrichment and professional development initiatives that align with employees' growth aspirations (Ramalu, Kalimuthu and Subramaniam Sri Ramalu, 2022). Moreover, transformational leadership practices have been identified as crucial for embedding employees across sectors by fostering trust and aligning organizational objectives with individual values, thereby enhancing retention (Hassan *et al.*, 2021). These findings emphasize that tailoring JE strategies to sector-specific dynamics can significantly enhance their efficacy in reducing turnover and ensuring long-term organizational stability.

Topic 4: Exploring Job Embeddedness and Its Relationship with Workplace Behavior
JE plays a pivotal role in shaping workplace behavior by influencing how employees perceive their organizational and community ties. Research indicates that both on-the-job and off-the-job embeddedness significantly impact behaviors such as organizational citizenship, engagement, and turnover intentions (Harris, Wheeler and Kacmar, 2011; Khan *et al.*, 2018). Employees with strong off-the-job ties often exhibit higher levels of organizational commitment, as the interplay between their professional and social networks fosters a sense of belonging and loyalty (Purba *et al.*, 2016)). This connection is crucial, as it not only enhances job satisfaction but also mitigates the likelihood of turnover, particularly in challenging work environments (Jiang *et al.*, 2012; Porter *et al.*, 2019). Moreover, JE acts as a mediating variable in various workplace dynamics, helping to mitigate the effects of negative shocks and enhancing the influence of leadership styles on innovative behavior (Ibrahim, 2011; Masdupi, 2023). For instance, studies have shown that JE can buffer the adverse effects of workplace stressors, allowing employees to maintain higher levels of engagement and performance even in the face of challenges (Sender, Rutishauser and Staffelbach, 2018). This mediating role is particularly evident in the context of leadership, where employees with higher levels of embeddedness are more likely to respond positively to transformational or servant leadership styles (Heritage, Gilbert and Roberts, 2016; Khorakian *et al.*, 2021). Such leadership practices foster an environment that encourages employee involvement and commitment, further reinforcing the positive outcomes associated with JE. JE's role extends beyond mediation to include moderation in

organizational studies. For example, it moderates the relationship between leadership practices and job satisfaction, indicating that employees with higher embeddedness are more likely to exhibit positive behaviors under supportive leadership (Alhasnawi and Abbas, 2021). Additionally, JE mediates the effect of perceived fairness on turnover intentions, demonstrating that employees who feel embedded are less likely to leave their organizations despite occasional dissatisfaction, as their connections and perceived sacrifices outweigh the desire to quit (Harris, Wheeler and Kacmar, 2011; Jiang *et al.*, 2012). This highlights the importance of fostering both organizational and community embeddedness to influence workplace behavior positively.

Topic 5: Nursing-Specific Challenges in Job Retention and Career Development

JE plays a crucial role in addressing the challenges of job retention in the nursing profession, where turnover rates remain high due to demanding work environments and emotional exhaustion. Research indicates that organizational trust and quality of work life are vital in embedding nurses within their workplaces, thereby reducing turnover intentions (Zhao *et al.*, 2012). The perception of fairness, access to career development opportunities, and alignment between nurses' values and organizational culture enhance the fit dimension of JE, fostering stronger commitment (Gad and Elsayed, 2023). For instance, Zhao et al. (2012) found that a positive quality of work life significantly correlates with higher job embeddedness and affective commitment among nurses, which in turn reduces turnover intentions. Career development challenges for nurses often intersect with their embeddedness within organizations, particularly regarding training opportunities and professional growth. The lack of structured development programs contributes to reduced organizational commitment, especially in high-stress nursing roles (Dechawatanapaisal, 2018). Conversely, investment in leadership training, mentoring programs, and flexible work policies can strengthen links within the organization, enhancing nurses' sense of belonging and commitment (Akkaya *et al.*, 2022). For example, Akkaya et al. (2022) emphasize that leadership training and mentorship can significantly improve job embeddedness by fostering supportive relationships and professional growth opportunities. Moreover, JE acts as a mediating factor between job satisfaction and turnover, demonstrating that embedding nurses in supportive professional networks can help offset workplace stress (Gad and Elsayed, 2023). Marasi, Cox and Bennett, (2016) highlight that when nurses feel embedded in their organizations, they are less likely to experience burnout and more likely to exhibit higher job satisfaction, which ultimately reduces turnover intentions (Gad and Elsayed, 2023). This mediating role is crucial, as it suggests that enhancing JE through targeted strategies can effectively mitigate the adverse effects of job stress and emotional exhaustion prevalent in nursing.

Topic 6: Voluntary Turnover and JE: Employee Perspectives

Voluntary turnover has been significantly explained through the lens of JE, which emphasizes the relational and contextual ties that bind employees to their organizations and communities. Employees with strong on-the-job embeddedness, characterized by coworker support and growth opportunities, are less likely to consider leaving their positions (Huning, Hurt and Frieder, 2020; Aman-Ullah *et al.*, 2021). This is particularly relevant in environments where interpersonal relationships and professional development are prioritized, as these factors enhance employees' commitment to their roles (Yun, Lee and Choi, 2023). Similarly, off-the-job embeddedness, such as community involvement and personal connections, plays

a crucial role in anchoring employees to their organizations, thereby reducing turnover intentions (Shehawy, Elbaz and Agag, 2018; Tatar, Müceldili and Erdil, 2018). JE also serves as a mediating factor in turnover decisions. When employees perceive a misalignment with organizational values or limited career growth, their sense of embeddedness weakens, leading to higher turnover intentions (Elsayed and Abdel-Ghani, 2022). Factors such as workplace distance and career stagnation exacerbate these risks, making it essential for organizations to actively engage employees in their professional development and community involvement (Huning, Hurt and Frieder, 2020; AlMemari, 2023). For instance, Peltokorpi *et al.*, (2022) highlight that employees who feel disconnected from their workplace or community are more likely to seek alternative employment opportunities, emphasizing the importance of fostering strong ties in both domains (Huning, Hurt and Frieder, 2020). Enhancing JE through leadership support and community engagement initiatives helps mitigate these risks. Research indicates that supportive leadership practices, such as servant leadership, can significantly enhance employees' job embeddedness by fostering a positive work environment and promoting professional growth (Esterlita and Purba, 2019; Huning, Hurt and Frieder, 2020). Additionally, community engagement initiatives that encourage employees to participate in local activities can strengthen their off-the-job embeddedness, further anchoring them to their organizations (Zhao *et al.*, 2018). These findings underscore the importance of viewing JE from an employee-centric perspective, recognizing that individual experiences and relational ties significantly influence turnover decisions.

Table 03

Topic labels, top words, and exemplary studies (Source: Authors)

Topics	Top Words	FREX Words	Exemplary studies
Topic 1	job, abstract, available, embedded, construct, relationship, among, commitment, group, approach, commentary, coronavirus, craft, disease,	available, among, job, relationship, construct, group, approach, embedded, commit, theoretical, practical, employee, commentary, coronavirus	Mitchell *et al.*, 2001, Ramesh and Gelfand, 2010, Sun *et al.*, 2011, Swider, Boswell and Zimmerman, 2011, Ampofo, Coetzer and Poisat, 2017, Ma, Mayfield and Mayfield, 2018
Topic 2	embedded, job, turnover, organization, employee, intention, capabilities, engagement, profession, center, find, call, combination, retention, industries	capability, engagement, expatriate, mechanism, center, engine, gender, generation, repatriate, vendor, combine, profession, call, industry, intention	Jiang *et al.*, 2012, Sender, Rutishauser and Staffelbach, 2018, Peltokorpi and Allen, 2023, Allen, Peltokorpi and Rubenstein, 2016; Porter *et al.*, 2019, Sender, Rutishauser and Staffelbach, 2018
Topic 3	job, embedded, organization, retention, nursing, employee, perceive, result, develop, perform, predict, relationship, healthcare, turnover, support	healthcare, perceive, retention, organization, assess, trust, team, nursing, perform, predict, result, develop, hospitality, support, alternative	Ma, Mayfield and Mayfield, 2018., Ramalu, Kalimuthu and Subramaniam Sri Ramalu, 2022, Artiningsih *et al.*, 2023

| Topic 4	job, embedded, relationship, behavior, model, career, perception, internal, psychological, negative, shock, affect, effect, result, justice	negative, shock, justice, perception, psychological, custom, behavior, affect, disposition, level, unfold, relationship, career, internal, model	Harris, Wheeler and Kacmar, 2011; Khan *et al.*, 2018, Purba *et al.*, 2016, Ibrahim, 2011; Masdupi, 2023, Sender, Rutishauser and Staffelbach, 2018, Alhasnawi and Abbas, 2021
Topic 5	nursing, job, retention, work, career, manage, experience, change, studies, individual, support, factor, program, develop, year	nursing, change, relocate, willing, experience, program, accept, contextual, force, graduate, mobile, career, may, studies, retention	Zhao *et al.*, 2012, Gad and Elsayed, 2023, Dechawatanapaisal, 2018), Akkaya *et al.*, 2022, Marasi, Cox and Bennett, 2016
Topic 6	embedded, turnover, job, employee, voluntary, effect, resource, intention, organization, mediate, relationship, work, also, perform, hrm	hrm, obsolescence. voluntary, turnover, also, resource, software, client, skill, hypotheses mediate, intention, moder, effort, firm	Huning, Hurt and Frieder, 2020; Aman-Ullah *et al.*, 2021, Yun, Lee and Choi, 2023, Shehawy, Elbaz and Agag, 2018; Tatar, Müceldili and Erdil, 2018, Elsayed and Abdel-Ghani, 2022
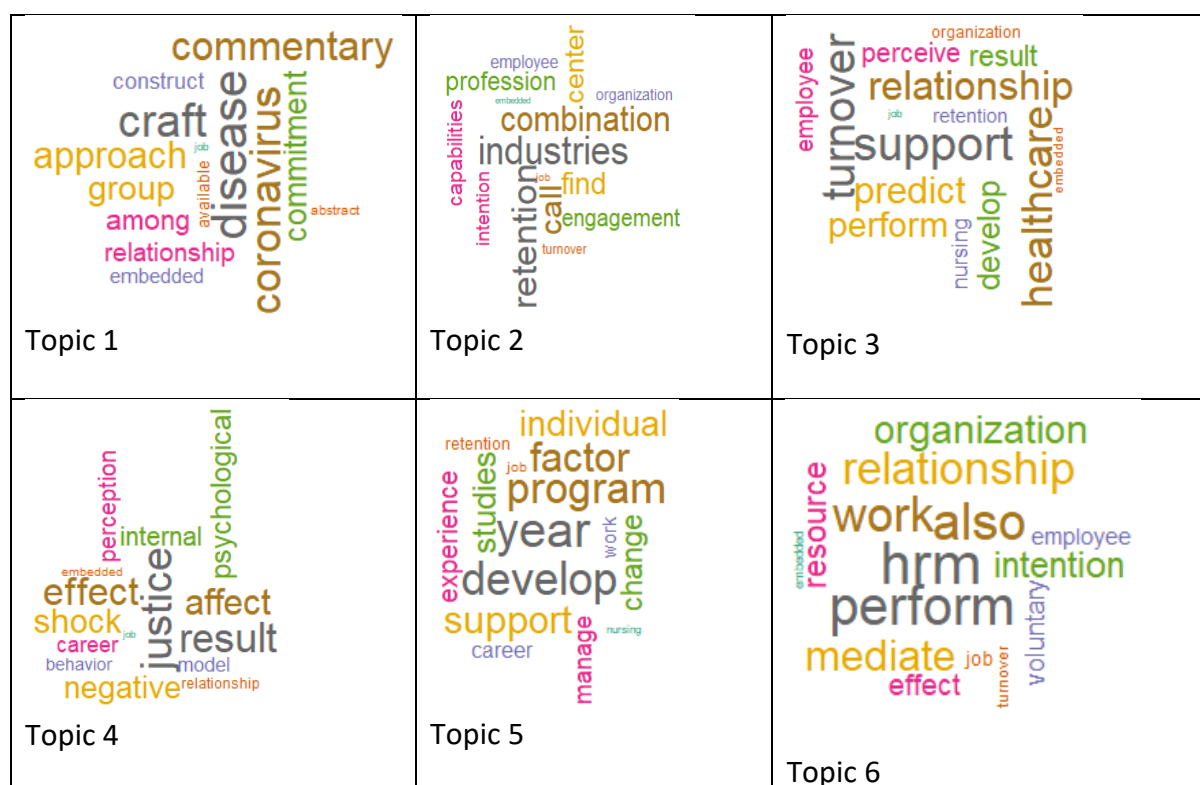
Figure 12: Word cloud for each topic
Source: Authors

The comprehensive analysis of the six latent topics identified through STM underscores the multi-dimensional nature of JE research. Each topic offers unique insights into critical aspects of JE, reflecting its relevance across theoretical, organizational, and employee-focused

perspectives. The emphasis on **conceptual foundations and constructs** highlights the sustained effort to refine the theoretical underpinnings of JE, which serve as the bedrock for empirical studies and practical applications**. Employee turnover in organizational contexts** remains a significant focus, demonstrating JE's role in mitigating turnover and fostering retention across diverse industries.

The examination of **organizational strategies for JE and retention** reveals the importance of strategic interventions, such as leadership development and employee engagement initiatives, in addressing workforce challenges. Similarly, the exploration of **workplace behavior** underlines the construct's behavioral implications, particularly its impact on job performance, engagement, and organizational citizenship. **Nursing-specific challenges** offer a sectoral lens, emphasizing the unique retention and career development issues faced in high-stress environments like healthcare. Finally, **employee perspectives on voluntary turnover** highlight individual-level dynamics, offering a nuanced understanding of how personal and professional factors influence retention decisions.

Together, these topics illustrate the interconnected and evolving nature of JE research. While foundational constructs remain central, the field has expanded to address sector-specific and behavioral dimensions. The analysis also highlights gaps, particularly in underexplored areas like non-traditional work settings and sector-specific challenges. In conclusion, the six topics collectively offer a comprehensive framework for understanding JE, bridging theoretical insights and practical applications to address modern workforce challenges and contribute to organizational success.

Topic Trends and Future Areas

The analysis of the latent topics identified through Structural Topic Modeling reveals varied trends in the prevalence of key themes within JE research. Topic 1, which focuses on conceptual foundations and constructs, has shown a consistent increase in prominence over the years. This upward trend reflects the sustained efforts of researchers to refine the theoretical dimensions of JE, emphasizing the importance of clear and comprehensive conceptualizations. The growth in this topic's prevalence highlights its foundational role in the field, serving as a basis for further empirical and applied studies. As organizations continue to grapple with employee retention challenges, the theoretical constructs of JE remain critical in providing frameworks that can guide both research and practice. The steady rise in this topic suggests opportunities for future exploration into interdisciplinary linkages, such as the integration of JE with broader constructs like organizational sustainability, employee well-being, and adaptive workforce strategies.

Topic 2, which explores the relationship between JE and employee turnover in organizational contexts, presents a U-shaped trend over time. The initial strong interest in this topic declined around 2010, possibly due to saturation or a shift in research priorities, before resurging in recent years. This renewed attention aligns with the changing workforce landscape, where issues such as job mobility, remote work, and evolving employee expectations have intensified the focus on retention strategies. Topic 2 underscores the practical implications of JE in reducing turnover, making it a significant area of interest for both researchers and practitioners. The resurgence of this topic highlights the need for further exploration of sector-specific dynamics, particularly in industries characterized by high turnover rates, such

as healthcare, education, and technology. Additionally, the impact of hybrid work models and digital transformation on turnover and JE remains a promising avenue for future research.

The trajectory of Topic 3, which addresses organizational strategies for JE and retention across sectors, exhibits a steady decline in prevalence. This decline may indicate a shift in the focus of research from broad organizational strategies to more nuanced and context-specific applications. Despite this downward trend, the relevance of Topic 3 persists as organizations continuously seek to adapt retention strategies to emerging challenges. The overlaps between this topic and others, particularly those focusing on workplace behavior and turnover, underscore the interconnected nature of JE research. Future investigations could delve into the comparative effectiveness of retention strategies across different organizational cultures and geographic regions, providing insights into how various contextual factors influence the success of these strategies. Moreover, the role of leadership styles, employee engagement initiatives, and human resource management practices in fostering JE deserves further attention.

Topic 4, which examines the relationship between JE and workplace behavior, reveals a trend similar to that of Topic 2, with a decline around 2010 followed by a gradual recovery in recent years. This pattern highlights the growing recognition of the behavioral outcomes associated with JE, such as job performance, organizational citizenship behaviors, and employee engagement. Unlike other topics, Topic 4 bridges the gap between foundational constructs and practical applications, focusing on the individual and interpersonal dynamics that underpin workplace behavior. This unique positioning makes it an essential area of research for understanding how JE influences organizational effectiveness. The recovery in this topic's prevalence points to renewed interest in exploring the psychological and emotional aspects of JE, particularly in light of the increasing prevalence of remote and hybrid work environments. Future studies could investigate how JE moderates the impact of workplace conflicts or enhances team collaboration and innovation.

Topic 5, which focuses on nursing-specific challenges in job retention and career development, shows a consistent decline in prevalence over time. This downward trend is surprising given the persistent workforce shortages and retention issues in the healthcare sector, particularly among nurses. The narrow focus of this topic highlights the unique challenges faced by nursing professionals, such as high levels of stress, burnout, and limited career advancement opportunities. The decline in research attention suggests a critical gap in the literature, underscoring the need for renewed focus on this area. Future research could explore the effectiveness of JE interventions in addressing these challenges, particularly in high-stress environments like hospitals and long-term care facilities. Additionally, comparative studies examining the retention strategies employed in different healthcare settings could provide valuable insights into best practices for fostering JE among nursing professionals.

Topic 6, which centers on voluntary turnover and JE from an employee perspective, also exhibits a declining trend. This topic offers valuable insights into the individual-level factors influencing turnover decisions, such as career aspirations, personal values, and work-life balance. Unlike Topic 2, which focuses on organizational contexts, Topic 6 adopts an employee-centric approach, providing a complementary perspective on turnover. The decline

in this topic's prevalence suggests an underexplored area, particularly in the context of global labor market shifts, such as the rise of gig work, flexible employment arrangements, and the increasing emphasis on employee autonomy. Future research could examine how JE influences employee loyalty and retention in non-traditional work settings, addressing gaps in understanding employee decision-making processes. Additionally, the role of organizational culture and managerial support in enhancing JE among employees with diverse career trajectories warrants further investigation.

Comparative analysis of the trends across these six topics highlights distinct yet interconnected dimensions of JE research. While Topics 1 and 2 demonstrate strong or resurgent interest, reflecting ongoing efforts to refine theoretical frameworks and address practical challenges, Topics 3 and 4 reveal overlapping areas of focus on organizational strategies and workplace behaviors. These overlaps suggest opportunities for integrated research approaches that bridge theoretical and applied perspectives. On the other hand, the declining trends observed in Topics 5 and 6 point to potential gaps in sector-specific and employee-centered research, underscoring the need for more targeted investigations. Collectively, these trends reveal a dynamic and evolving field, with ample opportunities to explore emerging themes such as the integration of JE with hybrid work models, cross-cultural applications, and the challenges posed by technological advancements.
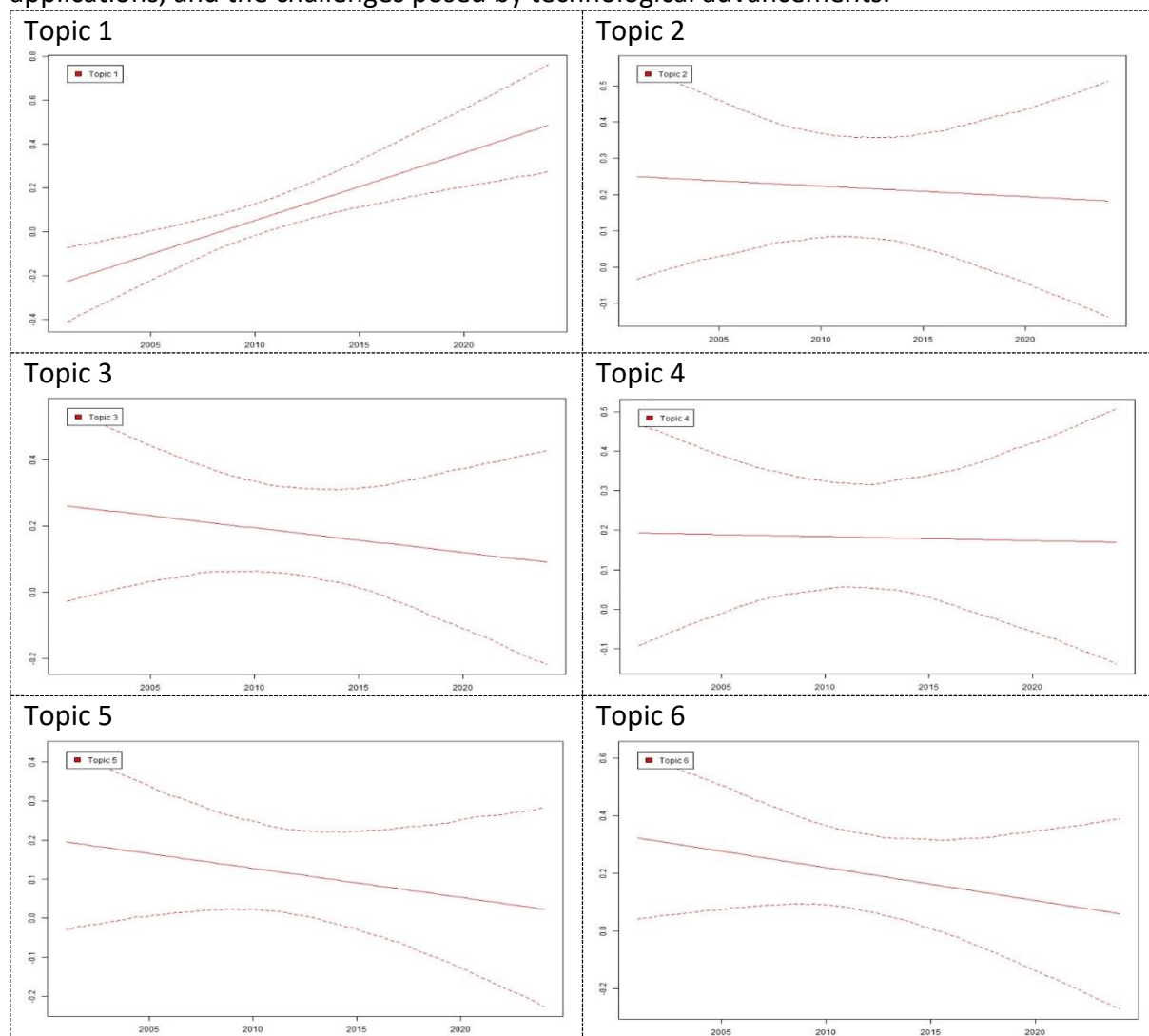
Figure 13. Prevalence of topics over time (95% confidence intervals)
Source: Authors

The insights derived from the analysis of these trends provide a roadmap for future research in JE. The growing prominence of foundational constructs underscores the importance of theoretical clarity, while the resurgence of topics related to turnover and workplace behavior highlights the practical relevance of JE in addressing contemporary workforce challenges. The decline in sector-specific and employee-centric topics, however, calls for renewed focus on these areas to ensure a comprehensive understanding of JE across diverse contexts. By addressing these gaps and leveraging the interconnected nature of the identified topics, future research can contribute to advancing both the theoretical and practical dimensions of JE, ultimately enhancing organizational effectiveness and employee well-being.

Conclusion
This study provides a comprehensive analysis of the thematic structure of JE research through Structural Topic Modeling (STM), offering valuable insights into its conceptual foundations, practical applications, and evolving trends. The six identified topics—conceptual foundations, employee turnover, organizational strategies, workplace behavior, nursing-specific challenges, and employee perspectives—highlight the multi-dimensional nature of JE. Each topic reflects distinct yet interconnected dimensions, bridging theoretical constructs and applied organizational strategies. The findings underscore the foundational role of JE in employee retention, particularly in addressing turnover and fostering engagement, while also identifying critical sector-specific challenges and individual-level dynamics.

The trends analysis revealed that conceptual foundations have grown steadily in prominence, signifying the sustained effort to refine theoretical frameworks. Conversely, declining trends in nursing-specific challenges and employee perspectives highlight gaps in sectoral and employee-centric research, indicating areas requiring further scholarly attention. The resurgence of topics related to turnover and workplace behavior points to the dynamic workforce landscape, influenced by remote work, hybrid models, and evolving employee expectations. The interconnectedness of these topics demonstrates the relevance of JE as an integrative construct, offering pathways for interdisciplinary research.

This paper emphasizes the importance of a structured approach to STM, using robust diagnostic metrics to select an optimal six-topic model, ensuring clarity and granularity. Future research should explore underrepresented areas, such as JE in non-traditional work settings and its role in fostering employee loyalty and well-being. By bridging gaps and exploring emerging themes, JE research can continue to contribute significantly to organizational success and employee satisfaction, providing a deeper understanding of the complex interplay between organizational strategies, individual behavior, and workforce trends.

Theoretical and Contextual Contribution
This research makes a significant theoretical contribution by advancing the understanding of job embeddedness (JE) through the application of Structural Topic Modeling (STM), offering a novel approach to examining the thematic evolution and interconnections within JE literature. By identifying latent topics that shape workforce retention strategies, the study

enriches the theoretical discourse on employee retention by bridging classical organizational behavior theories with contemporary machine learning methodologies. Contextually, this research provides actionable insights for organizations navigating the complexities of modern workforce dynamics, particularly in response to evolving job expectations, hybrid work models, and industry-specific retention challenges. The study highlights underexplored areas, such as nursing-specific retention issues and employee-centered perspectives on voluntary turnover, offering policymakers and organizational leaders data-driven strategies to enhance workplace stability. By integrating conceptual frameworks with empirical trends, this research underscores the critical role of JE in fostering employee commitment, organizational resilience, and sectoral workforce sustainability, thereby extending its applicability beyond traditional turnover studies to broader socio-economic and industrial contexts.

References

Akkaya, B., Panait, M., Apostu, S. A., & Kaya, Y. (2022). Agile Leadership and Perceived Career Success: The Mediating Role of Job Embeddedness. *International Journal of Environmental Research and Public Health*, *19*(8), 4834. https://doi.org/10.3390/ijerph19084834

Al, U. (2019). Natural Language Processing Applications in Library and Information Science. *Online Information Review*, *43*(4), 676–690. https://doi.org/10.1108/oir-07-2018-0217

Alhasnawi, H. H., & Abbas, A. A. (2021). Narcissistic Leadership and Workplace Deviance: A Moderated Mediation Model of Organizational Aggression and Workplace Hostility. *Organizacija*, *54*(4), 334–349. https://doi.org/10.2478/orga-2021-0023

Allen, D. G., Peltokorpi, V., & Rubenstein, A. L. (2016). When "Embedded" Means "Stuck": Moderating Effects of Job Embeddedness in Adverse Work Environments. *Journal of Applied Psychology*, *101*(12), 1670–1686. https://doi.org/10.1037/apl0000134

AlMemari, M. (2023). Does Career Adaptability Motivate Self-Initiated Expatriates to Embed With Their Jobs? The Mediating Effect of Job Crafting. *Fiib Business Review*, *14*(1), 89–102. https://doi.org/10.1177/23197145231204396

Aman-Ullah, A., Aziz, A., Ibrahim, H., Mehmood, W., & Abbas, Y. A. (2021). The Impact of Job Security, Job Satisfaction and Job Embeddedness on Employee Retention: An Empirical Investigation of Pakistan's Health-Care Industry. *Journal of Asia Business Studies*, *16*(6), 904–922. https://doi.org/10.1108/jabs-12-2020-0480

Ampofo, E. T. (2020). Mediation effects of job satisfaction and work engagement on the relationship between organisational embeddedness and affective commitment among frontline employees of star–rated hotels in Accra. *Journal of Hospitality and Tourism Management*, *44*(August), 253–262. https://doi.org/10.1016/j.jhtm.2020.06.002

Ampofo, E. T., Coetzer, A., & Poisat, P. (2017). Relationships between job embeddedness and employees' life satisfaction. *Employee Relations*, *39*(7), 951–966. https://doi.org/10.1108/ER-10-2016-0199

Arabshahi, F. (2016). *Spectral Methods for Correlated Topic Models*. https://doi.org/10.48550/arxiv.1605.09080

Aranda, A. M., Sele, K., Etchanchu, H., Guyt, J., & Vaara, E. (2021). From Big Data to Rich Theory: Integrating Critical Discourse Analysis With Structural Topic Modeling. *European Management Review*, *18*(3), 197–214. https://doi.org/10.1111/emre.12452

Arici, H. E., Arasli, H., Çobanoğlu, C., & Hejraty Namin, B. (2021). The Effect Of Favoritism On Job Embeddedness In The Hospitality Industry: A Mediation Study Of Organizational Justice. *International Journal of Hospitality and Tourism Administration*, *22*(4), 383–411.

https://doi.org/10.1080/15256480.2019.1650685

Artiningsih, D. W., Putra, D. S., Zainul, M., & Ibrahim, A. H. H. (2023). THE IMPACT OF JOB EMBEDDEDNESS AND WORK ENGAGEMENT ON STAFF TURNOVER. *Polish Journal of Management Studies*, *28*(2), 28–43. https://doi.org/10.17512/pjms.2023.28.2.02

Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative Science Studies*, *1*(1), 377–386. https://doi.org/10.1162/qss_a_00019

Bérubé, S. (2019). *Percentile-Based Residuals for Model Assessment*. https://doi.org/10.48550/arxiv.1910.03709

Chae, B., & Olson, D. L. (2018). A Topical Exploration of the Intellectual Development of <i>Decision Sciences</I> 1975–2016. *Decision Sciences*, *52*(3), 543–566. https://doi.org/10.1111/deci.12326

Chan, W. L., Ho, J. A., Sambasivan, M., & Ng, S. I. (2019). Antecedents and outcome of job embeddedness: Evidence from four and five-star hotels. *International Journal of Hospitality Management*, *83*(May 2018), 37–45. https://doi.org/10.1016/j.ijhm.2019.04.011

Dechawatanapaisal, D. (2018). Nurses' turnover intention: The impact of leader-member exchange, organizational identification and job embeddedness. *Journal of Advanced Nursing*, *74*(6), 1380–1391. https://doi.org/10.1111/jan.13552

Elsayed, R. S., & Abdel-Ghani, A. M. (2022). The association between Servant Leadership, Career Adaptability and Job Embeddedness among Staff Nurses at Main Mansoura University Hospital. *Tanta Scientific Nursing Journal*, *25*(2), 217–234. https://doi.org/10.21608/tsnj.2022.243371

Elshaer, I. A., & Azazz, A. M. S. (2022). Amid the covid-19 pandemic, unethical behavior in the name of the company: The role of job insecurity, job embeddedness, and turnover intention. *International Journal of Environmental Research and Public Health*, *19*(1). https://doi.org/10.3390/ijerph19010247

Esterlita, H. M., & Purba, D. E. (2019). *Organizational Embeddedness Dimensions' Roles in Perceived Career Opportunities: Turnover Intention of Indonesian Millennials*. https://doi.org/10.2991/iciap-18.2019.70

Fasbender, U., Van der Heijden, B. I. J. M. B. I. J. M., & Grimshaw, S. (2019). Job satisfaction, job stress and nurses' turnover intentions: The moderating roles of on-the-job and off-the-job embeddedness. *Journal of Advanced Nursing*, *75*(2), 327–337. https://doi.org/10.1111/jan.13842

Ferreira, A. I., Martinez, L. F., Lamelas, J. P., & Rodrigues, R. I. (2017). Mediation of Job Embeddedness and Satisfaction in the Relationship Between Task Characteristics and Turnover. *International Journal of Contemporary Hospitality Management*, *29*(1), 248–267. https://doi.org/10.1108/ijchm-03-2015-0126

Fuchs, R. M. (2022). Links, fit or sacrifice: job embeddedness and intention to quit among Generation Y. *European Journal of Management and Business Economics*, *31*(2), 160–175. https://doi.org/10.1108/EJMBE-05-2021-0156

Gad, S., & Elsayed, W. (2023). Relationship Between Perceived Organizational Politics and Job Satisfaction Among NGO Social Workers. *Public Organization Review*, *23*(2), 793–804. https://doi.org/10.1007/s11115-021-00578-6

Gonzalez, J. A., Ragins, B. R., Ehrhardt, K., & Singh, R. (2018). Friends and Family: The Role of Relationships in Community and Workplace Attachment. *Journal of Business and Psychology*, *33*(1), 89–104. https://doi.org/10.1007/s10869-016-9476-3

Halbesleben, J. R. B., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work and Stress*, *22*(3), 242–256. https://doi.org/10.1080/02678370802383962

Harris, K. J., Wheeler, A. R., & Kacmar, K. M. (2011). The Mediating Role of Organizational Job Embeddedness in the LMX–outcomes Relationships. *The Leadership Quarterly*, *22*(2), 271–281. https://doi.org/10.1016/j.leaqua.2011.02.003

Hassan, M. M., Jambulingam, M., Narayan, E. A., Islam, S. N., & Zaman, A. U. (2021). Retention Approaches of Millennial at Private Sector: Mediating Role of Job Embeddedness. *Global Business Review*, *0*(0), 1–27. https://doi.org/10.1177/0972150920932288

Heritage, B., Gilbert, J. M., & Roberts, L. D. (2016). Job embeddedness demonstrates incremental validity when predicting turnover intentions for Australian university employees. *Frontiers in Psychology*, *7*(APR). https://doi.org/10.3389/fpsyg.2016.00582

Hoffman, P. (2019). Reductions in Prefrontal Activation Predict Off-Topic Utterances During Speech Production. *Nature Communications*, *10*(1). https://doi.org/10.1038/s41467-019-08519-0

Hu, X., Wang, R., Zhou, D., & Xiong, Y. (2020). *Neural Topic Modeling With Cycle-Consistent Adversarial Training*. https://doi.org/10.18653/v1/2020.emnlp-main.725

Huning, T. M., Hurt, K. J., & Frieder, R. E. (2020). The effect of servant leadership , perceived organizational support , job satisfaction and job embeddedness on turnover intentions An empirical investigation. *Evidence-Based HRM, 8*(2), 177–194. https://doi.org/10.1108/EBHRM-06-2019-0049

Ibrahim, M. M. S. (2011). The Mediating Role of Job Embeddedness Between Internal Marketing and Turnover Intention. *International Journal of Customer Relationship Marketing and Management*, *2*(4), 38–53. https://doi.org/10.4018/jcrmm.2011100103

Isonuma, M., Mori, J., Bollegala, D., & Sakata, I. (2020). *Tree-Structured Neural Topic Model*. https://doi.org/10.18653/v1/2020.acl-main.73

Jiang, K., Liu, D., McKay, P. F., Lee, T. W., & Mitchell, T. R. (2012). When and how is job embeddedness predictive of turnover? A meta-analytic investigation. *Journal of Applied Psychology*, *97*(5), 1077–1096. https://doi.org/10.1037/a0028610

Karatepe, O. M. (2016). Does job embeddedness mediate the effects of coworker and family support on creative performance? An empirical study in the hotel industry. *Journal of Human Resources in Hospitality and Tourism*, *15*(2), 119–132. https://doi.org/10.1080/15332845.2016.1084852

Karatepe, O. M., & Karadas, G. (2012). The effect of management commitment to service quality on job embeddedness and performance outcomes. *Journal of Business Economics and Management*, *13*(4), 614–636. https://doi.org/10.3846/16111699.2011.620159

Karatepe, O. M., & Ngeche, R. N. (2012). Does Job Embeddedness Mediate the Effect of Work Engagement on Job Outcomes? A Study of Hotel Employees in Cameroon. *Journal of Hospitality Marketing and Management*, *21*(4), 440–461. https://doi.org/10.1080/19368623.2012.626730

Khan, M., Aziz, S., Afsar, B., & Latif, A. (2018). The Effect of Job Embeddedness on Turnover Intentions, Work Engagement, and Job Performance. *Journal of Tourism & Hospitality*, *07*(03). https://doi.org/10.4172/2167-0269.1000354

Khan, M. T., Azam, N., Khalid, S., & Aziz, F. (2022). Hierarchical Lifelong Topic Modeling Using Rules Extracted From Network Communities. *Plos One*, *17*(3), e0264481. https://doi.org/10.1371/journal.pone.0264481

Khorakian, A., Baregheh, A., Eslami, G., Yazdani, N., Maharati, Y., & Jahangir, M. (2021).

Creativity and Paternalistic Leadership in a Developing Country's Restaurants: The Role of Job Embeddedness and Career Stage. *International Journal of Tourism Research*, *23*(4), 677–689. https://doi.org/10.1002/jtr.2434

Khorakian, A., Nosrati, S., & Eslami, G. (2018). Conflict at work, job embeddedness, and their effects on intention to quit among women employed in travel agencies: Evidence from a religious city in a developing country. *International Journal of Tourism Research*, *20*(2), 215–224. https://doi.org/10.1002/JTR.2174

Le, K. D. R. (2024). Applications of Natural Language Processing Tools in the Surgical Journey. *Frontiers in Surgery*, *11*. https://doi.org/10.3389/fsurg.2024.1403540

Lee, T. W., Burch, T. C., & Mitchell, T. R. (2014). The Story of Why We Stay: A Review of Job Embeddedness. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*(1), 199–216. https://doi.org/10.1146/annurev-orgpsych-031413-091244

Lee, T. W., Mitchell, T. R., Sablynski, C. J., Burton, J. P., & Holtom, B. C. (2004). The Effects of Job Embeddedness on Organizational Citizenship, Job Performance, Volitional Absences, and Voluntary Turnover. *Academy of Management Journal*, *47*(5), 711–722. https://doi.org/10.5465/20159613

Lewin, K. (1951). *Field theory in social science: selected theoretical papers (Edited by Dorwin Cartwright.).* https://psycnet.apa.org/record/1951-06769-000

Li, X. (2024). Research on the Death Psychology Among Chinese During and After the COVID-19 Pandemic. *Scientific Reports*, *14*(1). https://doi.org/10.1038/s41598-024-53673-1

Lindstedt, N. C. (2019). Structural Topic Modeling for Social Scientists: A Brief Case Study With Social Movement Studies Literature, 2005–2017. *Social Currents*, *6*(4), 307–318. https://doi.org/10.1177/2329496519846505

Lone, N. A., Giri, K. J., & Bashir, R. (2022). Natural Language Processing Resources for the Kashmiri Language. *Indian Journal of Science and Technology*, *15*(43), 2275–2281. https://doi.org/10.17485/ijst/v15i43.1964

Ma, K. Q., Mayfield, M., & Mayfield, J. (2018). Keep Them on-Board! How Organizations Can Develop Employee Embeddedness to Increase Employee Retention. *Development in Learning Organizations an International Journal*, *32*(4), 5–9. https://doi.org/10.1108/dlo-11-2017-0094

Marasi, S., Cox, S. S., & Bennett, R. J. (2016). Job embeddedness: is it always a good thing? *Journal of Managerial Psychology*, *31*(1), 141–153. https://doi.org/10.1108/JMP-05-2013-0150

Masdupi, E. (2023). Work-Family Conflict and Turnover Intention: Mediation Model for Millennial Government Employees. *Problems and Perspectives in Management*, *21*(4), 127–139. https://doi.org/10.21511/ppm.21(4).2023.10

Mehmood, S. A., Malik, A. R., Nadarajah, D., & Saood Akhtar, M. (2022). A moderated mediation model of counterproductive work behaviour, organisational justice, organisational embeddedness and psychological ownership. *Personnel Review*. https://doi.org/10.1108/PR-05-2021-0330

Mehmood, S. A., Malik, M. A. R., Saood Akhtar, M., Faraz, N. A., & Memon, M. A. (2021). Organizational justice, psychological ownership and organizational embeddedness: a conservation of resources perspective. *International Journal of Manpower*, *42*(8), 1420–1439. https://doi.org/10.1108/IJM-06-2020-0296

Mishra, R. B., & Jiang, H. (2021). Management and Organizational Research: Structural Topic Modeling for a Better Understanding of Theory Application. *Sustainability*, *14*(1), 159. https://doi.org/10.3390/su14010159

Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablynski, C. J., & Erez, M. (2001). Why People Stay: Using Job Embeddedness to Predict Voluntary Turnover. *Academy of Management Journal*, *44*(6), 1102–1121. https://doi.org/10.5465/3069391

Morales, M., Patel, T., Tamm, A., Pickering, M. J., & Hoffman, P. (2022). Similar Neural Networks Respond to Coherence During Comprehension and Production of Discourse. *Cerebral Cortex*, *32*(19), 4317–4330. https://doi.org/10.1093/cercor/bhab485

Ng, T. W. H., & Feldman, D. C. (2010). The impact of job embeddedness on innovation-related behaviors. *Human Resource Management*, *49*(6), 1067–1087. https://doi.org/10.1002/HRM.20390

Ogawa, T., Shimadzu, H., & Saga, R. (2020). *Causality Model for Text Data With a Hierarchical Topic Structure*. https://doi.org/10.1109/taai51410.2020.00045

Peltokorpi, V., & Allen, D. G. (2023). Job Embeddedness and Voluntary Turnover in the Face of Job Insecurity. *Journal of Organizational Behavior*, *45*(3), 416–433. https://doi.org/10.1002/job.2728

Peltokorpi, V., Feng, J., Pustovit, S., Allen, D. G., & Rubenstein, A. L. (2022). The interactive effects of socialization tactics and work locus of control on newcomer work adjustment, job embeddedness, and voluntary turnover. *Human Relations*, *75*(1), 177–202. https://doi.org/10.1177/0018726720986843

Porter, C. M. (2024). On- and Off-the-job Embeddedness Differentially Shape Stress-related Reactions to Job Insecurity. *Applied Psychology*, *73*(4), 1916–1930. https://doi.org/10.1111/apps.12533

Porter, C., Posthuma, R., Maertz, C. P., Jr., J., J. R. W., R., J., G., & M., & Graves, K. (2019). On-the-job and off-the-job embeddedness differentially influence relationships between informal job search and turnover. *Journal of Applied Psychology*, *104*(5), 678–689. https://psycnet.apa.org/record/2018-62355-001

Purba, D. E. (2015). Employee Embeddedness and Turnover Intentions: Exploring the Moderating Effects of Commute Time and Family Embeddedness. *Makara Human Behavior Studies in Asia*, *19*(1), 39. https://doi.org/10.7454/mssh.v19i1.3472

Purba, D. E., Oostrom, J. K., Born, M. P., & Molen, H. T. Van Der. (2016). The Relationships Between Trust in Supervisor , Turnover Intentions , and Voluntary Turnover Testing the Mediating Effect of On-The-Job Embeddedness. *Journal of Personnel Psychology*, *15*(4), 174–183. https://doi.org/10.1027/1866-5888/a000165

Ramalu, S. S., Kalimuthu, M., & Subramaniam Sri Ramalu, and M. K. (2022). Servant Leadership and Retention of IT Professionals : Does Job Embeddedness Matter ? *Information Sciences Letters. An International Journal*, *808*(3), 799–808. https://doi.org/10.18576/isl/110311

Ramesh, A., & Gelfand, M. J. (2010). Will They Stay or Will They Go? The Role of Job Embeddedness in Predicting Turnover in Individualistic and Collectivistic Cultures. *Journal of Applied Psychology*, *95*(5), 807–823. https://doi.org/10.1037/a0019464

Ranganath, R., & Blei, D. M. (2017). Correlated Random Measures. *Journal of the American Statistical Association*, *113*(521), 417–430. https://doi.org/10.1080/01621459.2016.1260468

Reitz, O. E. (2014). The Job Embeddedness instrument : An evaluation of validity and reliability. *Geriatric Nursing*, *35*(5), 351–356. https://doi.org/10.1016/j.gerinurse.2014.04.011

Roberts, M. E., Stewart, B., & Tingley, D. (2019). <b>stm</B>: An <i>R</I> Package for Structural Topic Models. *Journal of Statistical Software*, *91*(2).

https://doi.org/10.18637/jss.v091.i02

Roberts, M. E., Stewart, B., Tingley, D., Lucas, C. G., Leder-Luis, J., Gadarian, S. K., Albertson, B., & Rand, D. G. (2014). Structural Topic Models for Open-Ended Survey Responses. *American Journal of Political Science*, *58*(4), 1064–1082. https://doi.org/10.1111/ajps.12103

Safavi, H. P., & Karatepe, O. M. (2019). The effect of job insecurity on employees' job outcomes: the mediating role of job embeddedness. *Journal of Management Development*, *38*(4), 288–297. https://doi.org/10.1108/JMD-01-2018-0004/FULL/HTML

Şakar, S. (2024). Research Topics and Trends in Gifted Education: A Structural Topic Model. *Gifted Child Quarterly*, *69*(1), 68–84. https://doi.org/10.1177/00169862241285041

Salomatin, K., Yang, Y., & Lad, A. (2009). *Multi-Field Correlated Topic Modeling*. https://doi.org/10.1137/1.9781611972795.54

Sender, A., Rutishauser, L., & Staffelbach, B. (2018). Embeddedness across contexts: A two-country study on the additive and buffering effects of job embeddedness on employee turnover. *Human Resource Management Journal*, *28*(2), 340–356. https://doi.org/10.1111/1748-8583.12183

Sharma, A., Rana, N. P., & Nunkoo, R. (2021). Fifty Years of Information Management Research: A Conceptual Structure Analysis Using Structural Topic Modeling. *International Journal of Information Management*, *58*, 102316. https://doi.org/10.1016/j.ijinfomgt.2021.102316

Shehawy, Y. M., Elbaz, A. M., & Agag, G. (2018). Factors Affecting Employees' Job Embeddedness in the Egyptian Airline Industry. *Tourism Review*, *73*(4), 548–571. https://doi.org/10.1108/tr-03-2018-0036

Stroth, C. (2010). Job embeddedness as a nurse retention strategy for rural hospitals. *Journal of Nursing Administration*, *40*(1), 32–35. https://doi.org/10.1097/NNA.0b013e3181c47d30

Sun, T., Zhao, X., Yang, L., & Lyu, F. (2011). The Impact of Psychological Capital on Job Embeddedness and Job Performance Among Nurses: A Structural Equation Approach. *Journal of Advanced Nursing*, *68*(1), 69–79. https://doi.org/10.1111/j.1365-2648.2011.05715.x

Swider, B. W., Boswell, W. R., & Zimmerman, R. D. (2011). Examining the Job Search–turnover Relationship: The Role of Embeddedness, Job Satisfaction, and Available Alternatives. *Journal of Applied Psychology*, *96*(2), 432–441. https://doi.org/10.1037/a0021676

Syahrial, S. (2024). Fine-Tuning Topic Modelling: A Coherence-Focused Analysis of Correlated Topic Models. *Infolitika J. Data Sci.*, *2*(2), 82–87. https://doi.org/10.60084/ijds.v2i2.236

Tatar, B., Müceldili, B., & Erdil, O. (2018). Does Employer Branding Affect Job Embeddedness? the Mediating Role of Dedication and Perceived Organizational Support. *Business and Management Studies an International Journal*, *6*(3), 346–361. https://doi.org/10.15295/bmij.v6i3.363

Tho, Q. T. (2022). N/a Modern Approaches in Natural Language Processing. *Vnu Journal of Science Computer Science and Communication Engineering*. https://doi.org/10.25073/2588-1086/vnucsce.302

Tian, Y. (2021). *A Multilayer Correlated Topic Model*. https://doi.org/10.48550/arxiv.2101.02028

Treuren, G. J. M. (2019). Employee embeddedness as a moderator of the relationship between work and family conflict and leaving intention. *International Journal of Human Resource Management*, *30*(17), 2504–2524.

https://doi.org/10.1080/09585192.2017.1326394

Vardaman, J. M., Rogers, B. L., & Marler, L. E. (2020). Retaining nurses in a changing health care environment: The role of job embeddedness and self-efficacy. *Health Care Management Review*, *45*(1), 52–59. https://doi.org/10.1097/HMR.0000000000000202

Vega-Carrasco, M. (2020). *Modelling Grocery Retail Topic Distributions: Evaluation, Interpretability and Stability*. https://doi.org/10.48550/arxiv.2005.10125

Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Psychiatry Research*, *14(4)*(January), 293.

Wang, P.-Y. A., & Hsieh, S.-K. (2023). Incorporating Structural Topic Modeling Into Short Text Analysis. *Concentric Studies in Linguistics*, *49*(1), 96–138. https://doi.org/10.1075/consl.22026.wan

Wang, W., Gan, Z., Xu, H., Zhang, R., Wang, G., Shen, D., Chen, C., & Carin, L. (2019). *Topic-Guided Variational Auto-Encoder for Text Generation*. https://doi.org/10.18653/v1/n19-1015

Weston, S. J. (2023). Selecting the Number and Labels of Topics in Topic Modeling: A Tutorial. *Advances in Methods and Practices in Psychological Science*, *6*(2), 251524592311601. https://doi.org/10.1177/25152459231160105

Wheeler, A. R., Harris, K. J., & Harvey, P. (2010). Moderating and mediating the HRM effectiveness—intent to turnover relationship: The roles of supervisors and job embeddedness. *Journal of Managerial Isssues*, *22*(2), 182–196. https://www.jstor.org/stable/20798904

Wu, Q., Zhang, C., Hong, Q., & Chen, L. (2014). Topic Evolution Based on LDA and HMM and Its Application in Stem Cell Research. *Journal of Information Science*, *40*(5), 611–620. https://doi.org/10.1177/0165551514540565

Yun, M.-S., Lee, M. Y., & Choi, E.-H. (2023). *What Factors Affect Job Embeddedness Among Clinical Nurses? A Structural Model Design*. https://doi.org/10.21203/rs.3.rs-3132662/v1

Zhang, X. (2024). "I Feel Like a Fraud Who Acts Like a Feminist": The Discussion Themes and Sexual Scripts in the Porn Free Women Online Forum. *Archives of Sexual Behavior*, *53*(6), 2189–2203. https://doi.org/10.1007/s10508-024-02858-w

Zhao, S., Shi, Y., Sun, Z., Xie, F., Wang, J., Zhang, S., Gou, T.-Y., Han, X., Sun, T., & Fan, L. (2018). Impact of Workplace Violence Against Nurses' Thriving at Work, Job Satisfaction and Turnover Intention: A Cross-sectional Study. *Journal of Clinical Nursing*, *27*(13–14), 2620–2632. https://doi.org/10.1111/jocn.14311

Zhao, X., Sun, T., Qiuru, C., Li, C., Duan, X., Fan, L., & Liu, Y. (2012). The Impact of Quality of Work Life on Job Embeddedness and Affective Commitment and Their Co-effect on Turnover Intention of Nurses. *Journal of Clinical Nursing*, *22*(5–6), 780–788. https://doi.org/10.1111/j.1365-2702.2012.04198.x

Zhu, L., He, Y., & Zhou, D. (2020). A Neural Generative Model for Joint Learning Topics and Topic-Specific Word Embeddings. *Transactions of the Association for Computational Linguistics*, *8*, 471–485. https://doi.org/10.1162/tacl_a_00326

Zou, J., Ye, Q., Cui, Y., Doermann, D., & Jiao, J. B. (2014). *A Belief Based Correlated Topic Model for Trajectory Clustering in Crowded Video Scenes*. 2543–2548. https://doi.org/10.1109/icpr.2014.439