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ORGANISATIONAL CITIZENSHIP BEHAVIOUR AND  
HEALTHCARE EMPLOYEES' TURNOVER INTENTION:  
A BIBLIOMETRIC ANALYSIS OF RESEARCH  
TRAJECTORIES IN THE 21<sup>ST</sup> CENTURY

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**Abstract:**

This bibliometric analysis investigates research trends in organisational citizenship behaviour and turnover intention within healthcare settings. The study reveals a notable increase in scholarly interest in these topics. The term "turnover intention" is a core keyword, highlighting researchers' central focus on retention issues. The emergence of diverse keywords in recent publications reflects the evolving nature of research, incorporating various organisational and individual factors and expanding the understanding of the interplay between organisational citizenship behaviour and turnover intention. The analysis identifies the United States and China as dominant contributors to this field, with the highest number of publications and strong cross-national collaborations. However, weaker connections in some other nations suggest potential for future collaboration. The predominance of research in nursing-specific journals indicates a high engagement level among nursing professionals, which may limit the exploration of evidence from other healthcare disciplines. The lack of involvement from various healthcare fields and underrepresented regions points to missed opportunities for comparative studies. Future research should broaden its scope to include diverse healthcare professions, foster wider collaboration, and investigate the combined effects of organisational and individual factors on OCB and TI in healthcare context.

**Keywords**

Bibliometric, Healthcare, Hospital, Organisational Citizenship Behaviour, Turnover Intention

## Introduction

The medical field is experiencing a significant challenge: an exodus of healthcare professionals, particularly physicians. This trend negatively affects patient care quality and threatens healthcare systems' stability globally (Zahednezhad et al., 2020; Perreira et al., 2018). Recent studies indicate that COVID-19-related fear has played a substantial role in prompting healthcare workers to leave, intensifying worries about staffing shortages, increased workloads for remaining personnel, and deteriorating healthcare service standards in numerous countries (Abd-Ellatif et al., 2021; Poon et al., 2022). According to Poon et al. (2022), pre-pandemic issues such as workplace anxiety, professional burnout, and excessive workloads were the factors that amplified turnover rates during the COVID-19 strike. As the pandemic wanes, it is crucial to reassess the factors that may continue to influence healthcare workers' career decisions in the post-pandemic period (Poon et al., 2022).

Malaysia's public healthcare system faces a persistent turnover of doctors, predating the COVID-19 pandemic (Abdul Rassip & Wan Puteh, 2020; Dulajis et al., 2022). This ongoing exodus of medical professionals has resulted in various issues, including the uneven distribution of doctors nationwide, staffing shortages in certain areas, and a brain drain as skilled and experienced physicians move to other countries or private hospitals. These problems have made it increasingly difficult for public hospitals to provide quality care to all patients (Ab Rahman et al., 2019). Consequently, public hospitals in Malaysia had to manage approximately 70% of acute medical cases with only 30% of the country's specialist doctors. This imbalance has significantly hindered efforts to achieve universal healthcare access in the country (Ahmad, 2019). As the attrition rate of public sector physicians continues to increase, concerns are growing about the ability of public hospitals to more effectively manage massive health cases and complex medical conditions (Dulajis et al., 2022).

Research has shown that organisational citizenship behaviour (OCB) plays a vital role in fostering organisational growth and is advantageous in reducing turnover among Malaysian public hospital employees, particularly nurses (Anvari et al., 2017; Mamud et al., 2023). Despite the apparent connection between these factors, an extensive literature review reveals no specific evidence from empirical studies examining the direct relationship between OCB and turnover intention (TI) within the Malaysian public healthcare context. This oversight aligns with observations made by Guiling et al. (2022) and de Geus et al. (2020). They noted that while there is extensive research on the various antecedents of OCB, there remains a lack of exploration into its potential adverse consequences, including its impact on TI, particularly within public sector organisations.

The insights into the evolution of research on OCB and TI can be mapped through a bibliometric analysis. A bibliometric approach offers a comprehensive view of the research landscape, enabling the identification of key themes, trends, and influential works in the field. In healthcare employee turnover, this method is valuable for systematically analysing the existing literature, highlighting research trends, and identifying influential studies that have shaped our understanding of the issue. Thus, this bibliometric study aims to uncover patterns and themes that may not be immediately evident through traditional reviews, providing a holistic understanding of the subject. The outcomes will contribute to a deeper understanding of the development of the body of knowledge related to the interplay between OCB and TI,

particularly within the healthcare contexts. Table 1 outlines this review's research objectives (ROs) and questions (RQs).

**Table 1: Research Objectives and Research Questions**

Research Objectives	Research Questions
RO1: Examining the evolution of the scholarly literature on OCB and TI in healthcare settings within the 21 <sup>st</sup> century.	RQ1: What are the trends in publications and citations? RQ2: What are the common keywords used in publications? RQ3: What is the temporal evolution of keywords used?
RO2: Determining the most influential authors and how they collaborate in research.	RQ4: Who are the most influential authors contributing substantially to literature? RQ5: How strongly are the authors connected in co-authoring the literature?
RO3: Analysing the most active and influential source's title.	RQ6: Which journals are mostly active and highly cited in the research domain? RQ7: Which documents are highly cited and can be accepted as top-performing publications?
RO4: Identifying the leading countries and patterns of their partnership in producing the scholarly literature.	RQ8: Which countries take the lead in contributing resources to the literature? RQ9: How strongly are countries involved in cross-country collaborative partnerships in publishing the literature?

### Literature Review

Research on OCB can be traced back to the early 1980s when pioneering studies by Bateman and Organ (1983) and Smith et al. (1983) introduced this concept. Their research was influenced by Katz's (1964) groundbreaking work on organisational behaviour motivation. Katz (1964) outlined three fundamental bases for organisational behaviour: first, individuals must be motivated to join and stay with the organisation; second, they must reliably fulfil their specific role requirements; and third, they must engage in spontaneous and innovative activities beyond their prescribed duties. Notably, Katz (1964) emphasised that “an organisation which depends solely upon its blueprints of prescribed behaviour is a very fragile system” (p. 32). This statement highlights two crucial points: first, the importance of employees going above and beyond their formal job duties, and second, the necessity of having staff members who contribute more than what is outlined in their job descriptions. Organisations would struggle to develop and strengthen their capabilities without such extra-role behaviours.

The concept of OCB describes voluntary workplace behaviours that employees perform without expecting organisational rewards or recognition (Smith et al., 1983). This concept was further developed by Organ (1988), who emphasised that OCB represents behaviour that goes beyond an employee's stipulated job requirements. Organ highlighted that the key characteristic of OCB is its voluntary nature, and it is not mandated or enforced as part of an employee's formal job duties. In his influential work entitled “Organizational Citizenship Behavior: The Good Soldier Syndrome,” Organ (1988, p. 4) briefly defined OCB as “individual behaviour that is discretionary, not directly or explicitly recognised by the formal reward system, and in the aggregate promotes the effective functioning of the organisation”. This definition emphasises two crucial aspects of OCB: first, that employees voluntarily choose

these extra efforts, and second, that they occur outside the organisation's formal reward structure.

Shanker (2018) emphasised that while employee turnover poses a significant organisational challenge, developing strong OCB among staff members can stimulate employees to be more loyal to their organisations. This emphasis was further supported by empirical studies conducted by Al Shbail and Al Shbail (2020) and Manoppo (2020), which confirmed a direct link between OCB and employees' intentions to stay with or leave their organisations. While several researchers have performed bibliometric analyses on OCB, as outlined in Table 2, these studies often lack specificity due to their broad scope across various contexts. The present bibliometric analysis seeks to fill this gap by concentrating on OCB among healthcare professionals in hospitals and clinics. This focused approach is expected to yield more precise and relevant insights than previous broader studies.

**Table 2: Previous Bibliometric Analyses on OCB**

Author	Search Domain	Source (timeframe)	Document	Contents of Analysis
Gan & Yusof (2020)	TITLE-ABS (((“organi*a*ional citizenship behavi*r”) AND DOCTYPE (ar) AND PUBYEAR > 1988 AND PUBYEAR < 2019 AND (LIMIT-TO ( SRCTYPE, “j”)))	Scopus (1988-2019)	2448	Co-authorships, author keywords, research outputs, top productive journals, top nations, collaboration and institutions, top scholars, concept and terminology of OCB used, and topic of interest.
Guiling et al. (2022)	“organisational citizenship behavior,” “citizenship behavior,” “organisational citizenship,” “organisational civic virtue” and “extra-role behavior”	Scopus (2000-2019)	4324	Leading authors, top journals, institutions, and countries, most influential countries, and their co-authorships, author keywords, concept and terminology, and topic of interest
Tamam et al. (2023)	“organisational citizenship behavior” or “OCB”	Scopus (2019-2023)	905	Research interest development, co-authorship, research themes, author keywords, and publication trends.
Yang et al. (2023)	“organisational citizenship behavior” or “organisational citizenship behaviour” or “organisational	Web of Science (2022 and before)	2692	The volume of literature, research authors, authors cooperation network, research institutions,

	citizenship behavior” or “organisational citizenship behaviour”			institutions cooperation network, journal citation network, highly cited and co- cited literature, keyword co- occurrence, evolution of the keywords usage, keywords clustering analysis, and core areas of OCB.
Sulphey et al. (2024)	“organisation citizenship behavior for the environment, OCB-E”	Scopus (2000 onwards)	187	Publications years, authors and the number of publications, keywords, top cited authors and journals, and co-authorships.

### Methodology

The study’s resource selection process was guided by specific inclusion and exclusion criteria, as detailed in Table 3. The selection prioritised primary research articles published within the 2000-2024 timeframe to align with the present bibliometric analysis objectives. Furthermore, the inclusion process emphasised empirical studies that presented data-driven findings, ensuring a focus on original research contributions to the field.

**Table 3: The Inclusion and Exclusion Criteria**

Criteria	Inclusion	Exclusion
1. Year	2000 - 2024	Before 2000
2. Types of resources	Original research articles	Non-original research articles
3. Objective of study	Reporting the empirical findings based on data- driven original research	Reporting the findings based on non-original research

On 15<sup>th</sup> July 2024, this bibliometric analysis began with a methodological literature search using the SCOPUS database. SCOPUS was chosen for its comprehensive, interdisciplinary resources and its standing as a premier database for academic citations. The study examines original research on OCB and TI published since 2000, particularly emphasising healthcare workers in hospital or clinic settings. Table 4 presents the search string used.

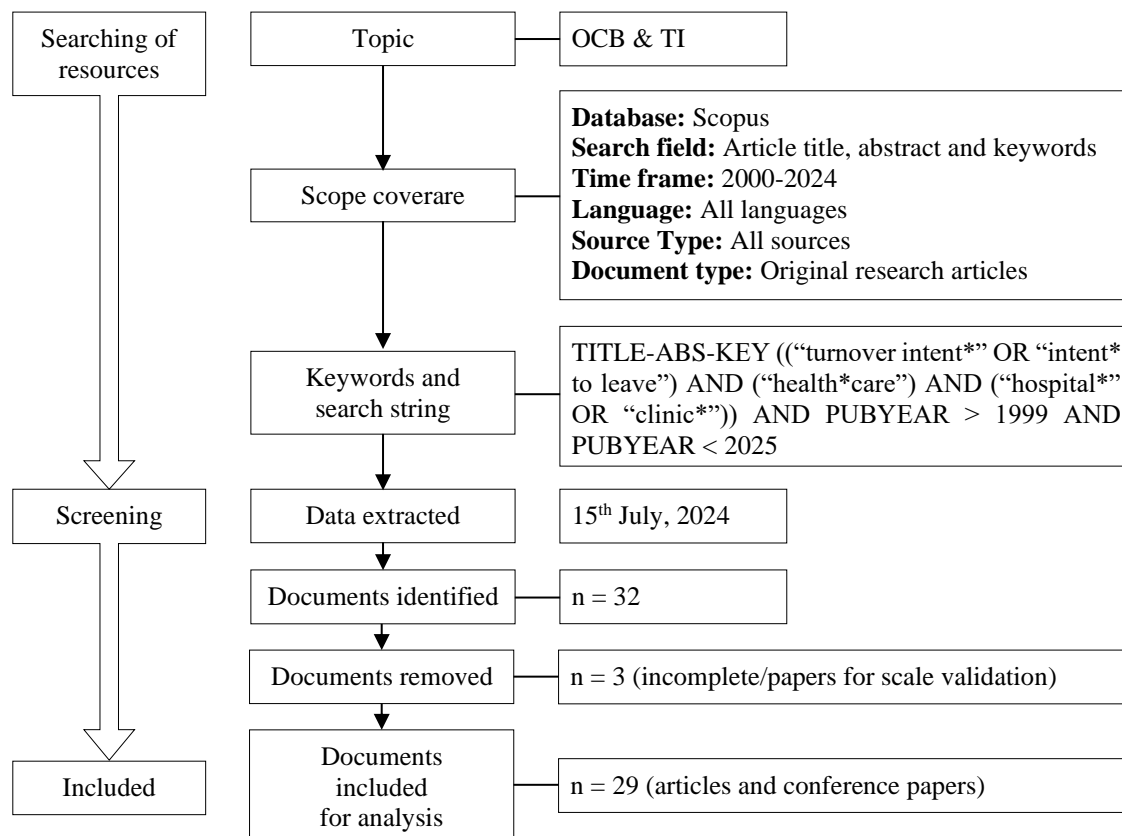
**Table 4: The search string**

Database	Search String
Scopus	TITLE-ABS-KEY ((“citizenship” OR “OCB” OR “pro*social”) AND (“turnover intent*” OR “intent* to leave”) AND (“health*care” OR “hospital” OR “clinic”))

The literature search yielded 32 documents in the initial phase. After conducting a screening process, three documents were removed from consideration, resulting in 29 documents (articles



and conference papers) that were eligible for the bibliometric study. Figure 1 represents the systematic document selection process, detailing the steps from the initial search to the final selection. This structured approach ensured a comprehensive collection of relevant literature examining OCB and TI among healthcare workers within the specified research context.



**Figure 1: PRISMA Flow Diagram of the Document Search**

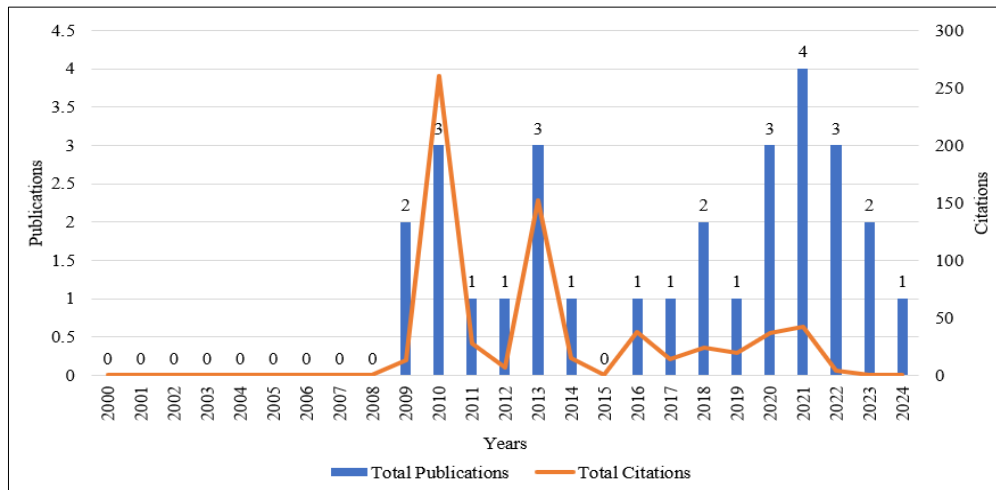
### Results of Bibliometric Analysis

The extracted data from the database was saved in a comma-separated values (.csv) format, facilitating analysis using the VOSviewer software. Simultaneously, the same dataset was saved in Microsoft Excel format, allowing for analysis and presentation of findings in tabular and graphical forms. The results and discussion of this bibliometric study are presented in alignment with the proposed ROs and research questions RQs.

### Trends in Publications and Citations

Research examining the relationship between OCB and TI in healthcare settings shows no publications recorded between 2000 and 2008 (Figure 2). The publication trajectory reveals notable fluctuations, beginning with moderate research output in 2009 and peaked in 2010, coincide with the highest citation impact of the entire period. After a brief decline, research activity resurged in 2013. A significant increase in research interest occurred during 2020-2021, with highest publication concentration. Citation patterns demonstrate interesting dynamics, with the most substantial impact in 2010, followed by another notable peak in 2013, indicating these early works' significant contributions to the field. The subsequent years maintained moderate citation levels despite publication output variations. Recent years have

shown a gradual decrease in both publication volumes and citation counts, suggesting a potential shift in research focus or maturation of the field within the healthcare context.



**Figure 2: Trajectory of the Yearly Growth in Publications and Citations**

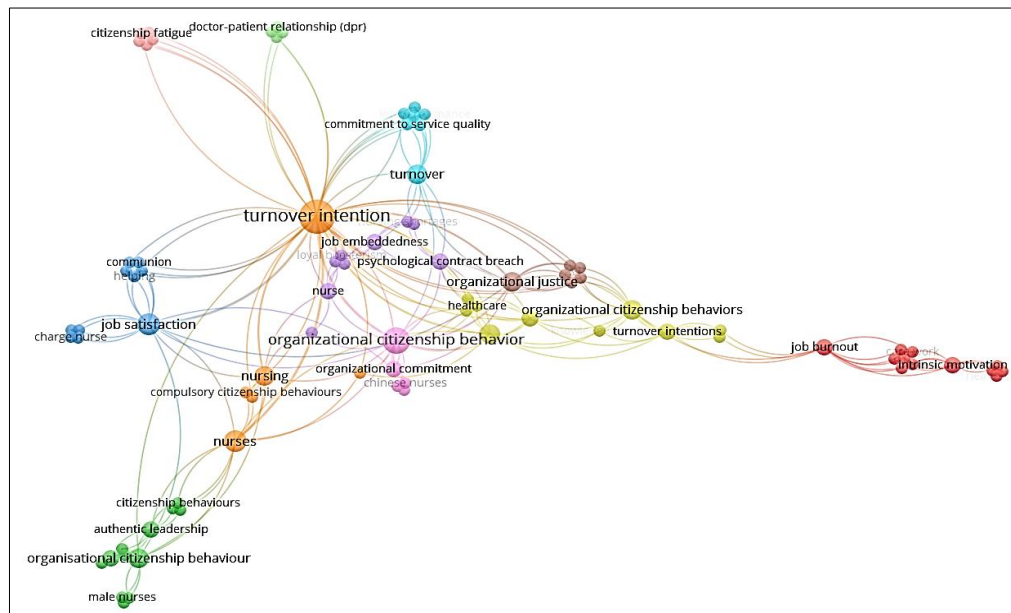
### ***Most Common Keywords Used in Publications***

Overall, 107 keywords appeared in the literature. The analysis (Table 5) discovers a strong emphasis on “turnover intention”, which emerges as the most significant contributor (11 occurrences), indicating its crucial role in understanding employee retention. “Organizational citizenship behavior,” appearing in multiple variations with combined 12 occurrences, has substantially shaped workplace behaviour research. The keywords related to employee attitudes (job satisfaction: 4 occurrences, organisational commitment: 2 occurrences) and psychological factors (job burnout: 2 occurrences, intrinsic motivation: 2 occurrences) highlights the complex nature of employee-organisation relationships. Notably, these factors, along with psychological contract breach (2 occurrences), contribute to understanding how employees' emotional and psychological states influence their workplace behaviours TI.

**Table 5: Most Common Keywords Used in Publications**

Keyword	Occurrences	Total Link Strength
Turnover intention	11	57
Organizational citizenship behavior	6	24
Job satisfaction	4	18
Nurses	4	16
Organizational citizenship behaviors	3	15
Perceived organisational support	3	15
Organizational justice	3	13
Turnover	3	13
Nursing	3	11
Organisational citizenship behaviour	3	11
Organisational commitment	2	11
Intrinsic motivation	2	11
Job burnout	2	11
Psychological contract breach	2	11

The network visualisation (Figure 3) illustrates the broad interconnections among authors' keywords, with TI serving as the central node and highlights its key importance in research. It shows strong connections with various forms of OCB, suggesting OCB's crucial role in employee retention. Likewise, the presence of various forms of the term "nurse" highlights the dominance of this profession in research participation. The network also reveals significant links between TI and sector-specific elements such as nursing, doctor-patient relationships, and charge nurse duties, typically mediated through job satisfaction. The visualisation further demonstrates how organisational factors (organisational justice, organisational commitment) and employee attitudes (job embeddedness, psychological contract breach, citizenship fatigue) connect to TI. Job burnout and intrinsic motivation appear as peripheral but interconnected outcomes, while organisational justice and OCB serve as intermediate links. The inclusion of demographic keywords (male nurse and Chinese nurse) suggests that research also considers the influence of gender and cultural factors, emphasising the focus on diverse populations.



**Figure 3: Network Visualisation of the Authors' Keywords**

The bibliometric analysis of the top 10 keywords (Table 6) offers valuable insights into thematic research trends. It highlights a convergence around pivotal constructs such as organisational citizenship behaviour and turnover intention, reflecting their interconnectedness in understanding employee dynamics. The prominence of keywords like perceived organisational support and organisational justice underscores a strong emphasis on organisational factors that shape employee perceptions and behaviours. Additionally, the inclusion of nursing-related terms alongside job satisfaction suggests a targeted focus on employee well-being and satisfaction within healthcare settings. These trends indicate that the enhancement of citizenship behaviours, job satisfaction, and perceived fairness has garnered significant research attention in efforts to address turnover intentions, particularly within the healthcare sector.

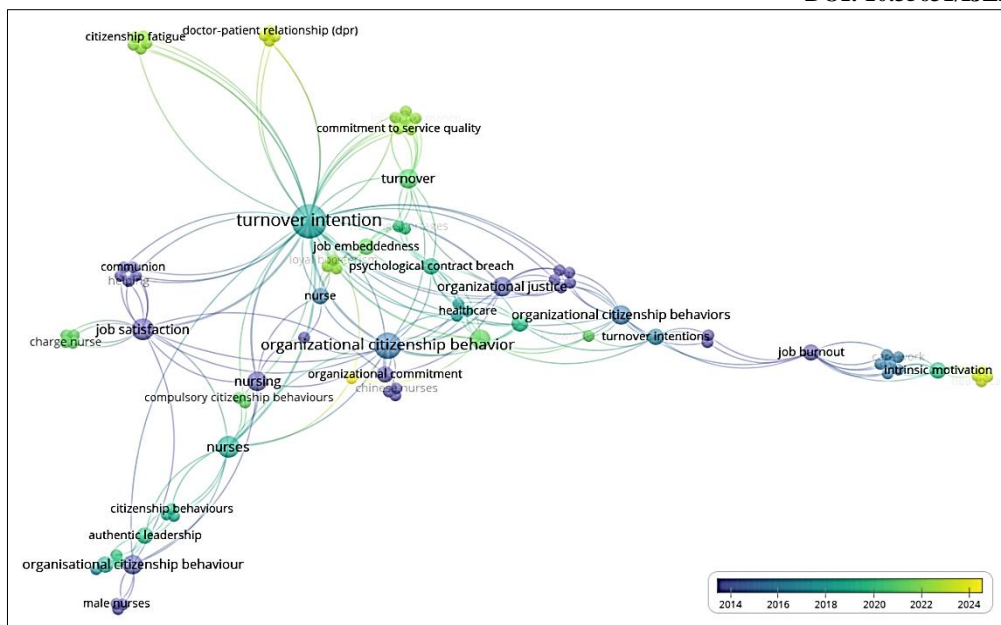


**Table 6: Top 10 Keywords Appearing in at Least Three Documents**

No.	Keyword	Occurrences	Total Link Strength
1	Turnover intention	11	57
2	Organizational citizenship behavior	6	24
3	Job satisfaction	4	18
4	Nurses	4	16
5	Organizational citizenship behaviors	3	15
6	Perceived organizational support	3	15
7	Organizational justice	3	13
8	Turnover	3	13
9	Nursing	3	11
10	Organisational citizenship behaviour	3	11
<b>Grand Total</b>		<b>43</b>	<b>193</b>

***Temporal Evolution of Keywords Used in Publications***

Figure 4 illustrates an temporal evolution of the keywords used in publications. In earlier studies (2014-2016), keywords such as organisational citizenship behaviour, nursing, male nurses, job burnout, organisational justice, organizational commitment and chinese nurse were fundamental in research. The trend indicates the authors' focus on the influence workplace dynamics, healthcare challenges, and of cultural and gender differences in research. The mid-period (2016-2020) saw an expansion into more complex constructs, with increased attention to TI and its various linked factors, such as authentic leadership, job embeddedness, psychological contract breach, and intrinsic motivation. This trend suggests that researchers have a growing interest in the psychological factors influencing employee retention. The most recent period (2020-2024) demonstrates an emerging focus on contemporary challenges, including citizenship fatigue, commitment to service quality, doctor-patient relationship, while also emphasising compulsory citizenship behaviours. This recent trends highlight rising concerns about healthcare workers' well-being and service quality amid increased workplace pressures and mandatory duties. The temporal progression reflects how research has evolved from basic organisational behaviour concepts to a more nuanced understanding of employee-organisation relationships, particularly in response to healthcare sector challenges.



**Figure 4: Overlay Visualisation of the Authors' Keywords**

### Most Influential Authors

Since all listed authors were found to have published a maximum of one publication each, this review could not identify the most prolific authors in research related to the reviewed context and field of study. Nevertheless, the citation counts of the articles they published suggest their influential contributions to the related body of knowledge. The analysis of the most influential authors (Table 7) reveals significant citation impacts across different international institutions. Gilbert, S., Laschinger, H. K. S., and Leither, M. emerge as the most cited authors with 91 citations for their publication. Following closely is Tsai, Y. and Wu, S.-W., whose work has garnered 88 citations. Meanwhile, Tourigny, L., Baba, V. V., Han, J., and Wang, X. have achieved 87 citations. Altuntas, S. and Baykal, U., whose publication has received 81 citations, also demonstrate substantial impact. Despite having only one publication, the consistent pattern of high citation counts among these authors indicates the significant quality and relevance of their contributions to the field. The diverse affiliations of the authors, spanning North America (Canada and the United States) and Asia (Taiwan, China, and Türkiye), suggest a global interest and impact of these authors in this research area.

**Table 7: Most Influential Authors**

Author	Affiliation	Country	h-Index	TP	CP	TC
Gilbert, S.	Cape Breton University	Canada	9	1	1	91
Laschinger, H. K. S.	Western University	Canada	80			
Leiter, M.	Acadia University	Canada	58			
Tsai, Y.	Chung Shan Medical University	Taiwan	10	1	1	88
Wu, S.-W.	Chia-Nan University of Pharmacy and Science	Taiwan	5			
Tourigny L.	University of Wisconsin-Whitewater	United States	10	1	1	87
Baba, V.V.	McMaster University, Canada	Canada	20			

Author	Affiliation	Country	h-Index	TP	CP	TC
Han, J.	China Europe Int. Business School	China	12			
Wang, X.	University of Manitoba	Canada	16			
Altuntas, S.	Bandırma Onyedi Eylül University	Türkiye	9	1	1	81
Baykal, U.	İstanbul Arel Üniversitesi	Türkiye	9			

Notes: TP = total publications; CP = cited publications; TC = total citations

### *Co-Authorship of the Most Linked Authors*

The analysis of the most linked authors (Table 8) reveals collaboration among seven researchers who share an equal total link strength (TLS = 6). This uniform TLS suggests that these authors have established equally strong collaborative ties in their joint publications. Notably, all seven authors (Abdul-majid, A. H., Anwar, T., Fahd, S., Gilal, A. R., Pahi, M. H., Talpur, B. A., and Waqas, A.) have collaborated on a single publication, bringing together diverse institutional perspectives from Malaysia (Universiti Utara Malaysia and Universiti Teknologi Petronas), Pakistan (The Islamia University of Bahawalpur), Ireland (Trinity College Dublin), and the United States (Florida International University). These strong collaborative ties across international boundaries demonstrate an effective model of knowledge sharing and academic partnership, where the researchers have likely leveraged each other's strengths and institutional resources to contribute to their field of study.

**Table 8: Co-authorship of the Most Linked Authors**

Author	Affiliation	Country	TDS	TCS	h-Index	TP	TC	TLS
Abdul-majid, A. H.	Universiti Utara Malaysia	Malaysia	41	351	11	1	2	6
Anwar, T.	Universiti Teknologi Petronas	Malaysia	44	406	10	1	2	6
Fahd, S.	The Islamia University of Bahawalpur	Pakistan	4	18	2	1	2	6
Gilal, A. R.	Universiti Teknologi Petronas	Malaysia	62	547	14	1	2	6
Pahi, M. H.	Universiti Teknologi Petronas	Malaysia	66	406	10	1	2	6
Talpur, B. A.	Trinity College Dublin	Dublin	19	222	7	1	2	6
Waqas, A.	Florida International University	United States	37	303	10	1	2	6

Notes: TDS = total documents in SCOPUS, TCS = total citations in SCOPUS, TP = total publications in OCB and TI; TC = total citations in OCB and TI; TLS = total link strength

### *Most Active and Influential Source's Title*

Table 9 presents 11 sources with publications that occurred within the analysed timeframe. These sources collectively produced 15 publications, accumulating 613 citations. It is shown that the most active and influential sources in OCB and TI research predominantly come from nursing-focused journals, with the Journal of Nursing Management leading in both publications (4) and total citations (163), followed by other nursing-specific journals such as Journal of

Clinical Nursing and Journal of Nursing Scholarship showing high citation impact despite single publications. This strong representation of nursing journals indicates that the research topic is particularly relevant and crucial within the nursing sector of healthcare. The second prominent field is management and human resources, represented by the International Journal of Human Resource Management and Human Relations. The high citation counts in these journals suggest that the organisational aspects of healthcare worker behaviour and retention are significant concerns from a management perspective. This distribution of publications and citations across diverse journals indicates the interdisciplinary nature of research in this area, spanning nursing, management, and social sciences domains.

**Table 9: Most Active and Influential Source's Title**

Sources	TP	TC	C/P
Journal of Nursing Management	4	163	40.8
International Journal of Human Resource Management	2	114	57.0
Journal of Clinical Nursing	1	88	88.0
Journal of Nursing Scholarship	1	81	81.0
Human Relations	1	38	38.0
Social Science and Medicine	1	38	38.0
Ekonomika A Management	1	28	28.0
International Journal of Human Rights in Healthcare	1	23	23.0
Journal of Applied Business Research	1	15	15.0
Intangible Capital	1	14	14.0
Journal of Korean Academy of Nursing	1	11	11.0
<b>Grand Total</b>	<b>15</b>	<b>613</b>	<b>433.75</b>

Notes: TP = total publications; TC = total citations; C/P = average citations per publication

### ***Top Performing Publications***

Table 10 outlines several key papers that significantly contributed to related research fields. Notably, the study by Gilbert et al. (2010), with 91 total citations, stands out as one of the most influential, examining the impact of burnout on empowerment and OCB. Similarly, Tsai and Wu (2010) made a substantial contribution with 88 citations, linking OCB, job satisfaction, and TI in an integrated research study. Tourigny et al. (2013), who examined emotional exhaustion and its impact on job performance through organisational commitment garnered 87 citations. The study by Altuntas and Baykal (2010), which examined the relationship between nurses' organisational trust levels and their citizenship behaviours, received 81 citations, reinforcing the importance of trust within healthcare settings. More recent publications, such as those by Yildiz and Elibol (2021) and Harris et al. (2020), are gaining momentum with 26 and 27 total citations, respectively. Yildiz and Elibol's (2021) study on social loafing in nurses, with an average of 8.7 citations per year, indicates a rapidly increasing interest in this emerging area. Harris et al. (2020), which focuses on justice perceptions and OCB, follow with 6.8 citations per year, demonstrating the ongoing relevance of fairness in employee turnover. Interestingly, recent works are being cited faster than earlier studies, reflecting the growing focus on newer dynamics such as social behaviours and organisational justice.

**Table 10: Top Performing Publications**

<b>Title</b>	<b>Authors</b>	<b>Source</b>	<b>PY</b>	<b>TC</b>	<b>C/Y</b>
The Mediating Effect of Burnout on the Relationship Between Structural Empowerment and Organizational Citizenship Behaviours	Gilbert, S.; Laschinger, H.K.S.; Leiter, M.	Journal of Nursing Management	2010	91	6.5
The Relationships Between Organisational Citizenship Behaviour, Job Satisfaction and Turnover Intention	Tsai, Y.; Wu,S.-W.	Journal of Clinical Nursing	2010	88	6.3
Emotional Exhaustion and Job Performance: The Mediating Role of Organizational Commitment	Tourigny, L.; Baba, V.V.; Han, J.; Wang, X.	International Journal of Human Resource Management	2013	87	7.9
Relationship Between Nurses' Organizational Trust Levels and Their Organizational Citizenship Behaviors	Altuntas, S.; Baykal, U.	Journal of Nursing Scholarship	2010	81	5.8
To Leave or Not to Leave: When Receiving Interpersonal Citizenship Behavior Influences an Employee's Turnover Intention	Regts, G.; Molleman, E.	Human Relations	2013	38	3.5
Motivation in Caring Labor: Implications for the Well-Being and Employment Outcomes of Nurses	Dill, J.; Erickson, R.J.; Diefendorff, J.M.	Social Science and Medicine	2016	38	4.8
Organizational Injustice and Work Alienation	Ceylan, A.; Sulu, S.	Ekonomika A Management	2011	28	2.2
Organisational Support, Organisational Identification and Organisational Citizenship Behaviour Among Male Nurses	Chen, S.-H.; Yu, H.-Y.; Hsu, H.-Y.; Lin, F.-C.; Lou, J.-H.	Journal of Nursing Management	2013	27	2.5
The Effects of Internal and External Sources of Justice on Employee Turnover Intention and Organizational Citizenship Behavior Toward Clients and Workgroup Members	Harris, C.M.; Lavelle, J.J.; McMahan, G.C.	International Journal of Human Resource Management	2020	27	6.8
Turnover Intention Linking Compulsory Citizenship Behaviours to Social Loafing in Nurses: A Mediation Analysis	Yildiz, B.; Elibol, E.	Journal of Nursing Management	2021	26	8.7

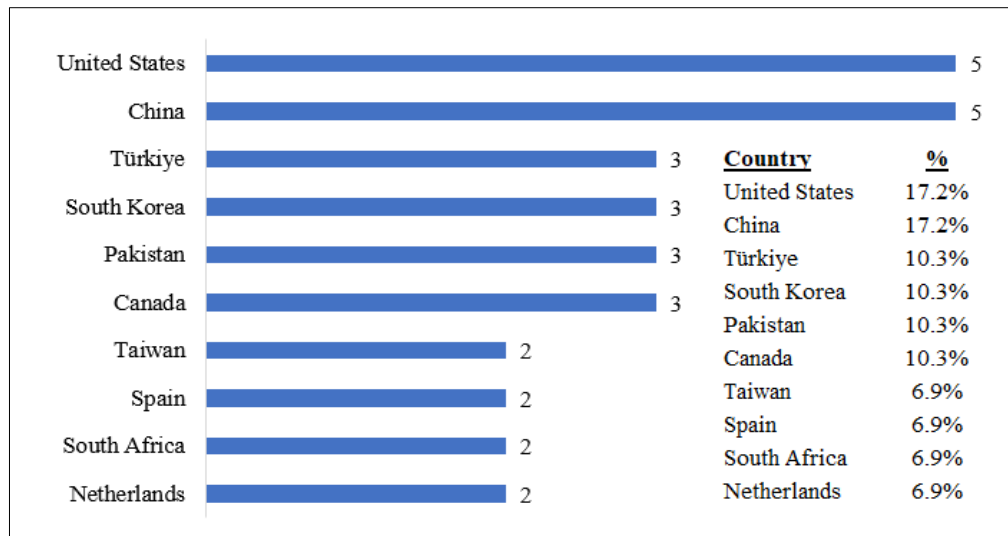


Title	Authors	Source	PY	TC	C/Y
Protecting Healthcare Through Organizational Support to Reduce Turnover Intention	Islam, T.; Ali, G.; Ahmed, I.	International Journal of Human Rights in Healthcare	2018	23	3.8
Nurses Psychological Empowerment: An Integrative Approach	Shapira-Lishchinsky, O.; Benoliel, P.	Journal of Nursing Management	2019	19	3.8
Procedural and Distributive Justice as Mediators of the Relationship Between Interactional Justice and Work Outcomes: An Empirical Study of the UAE Public Health Care Sector	Al Afari, T.S.; Abu Elanain, H.M.	Journal of Applied Business Research	2014	15	1.5
The Mediating Effect of Organizational Citizenship Behavior on the Relationship Between Workplace Spirituality and Intention to Leave	Anvari, R.; Barzaki, A.S.; Amiri, L.; Irum, S.; Shapourabadi, S.	Intangible Capital	2017	14	2.0
The Mediating Role of Organizational Citizenship Behavior Between Organizational Justice and Organizational Effectiveness in Nursing Organizations	Park, W.-Y.; Yoon, S.-H.	Journal of Korean Academy of Nursing	2009	11	0.7

Notes: PY = publication year; TC = total citations; C/Y = average citations per year

### ***Most Active Publishing Countries***

The geographic distribution of the top 10 countries in related research (Figure 5) shows that the United States and China emerge as the joint most productive nations, each contributing five publications (17.2% each) of the total 29 research outputs. This co-leadership suggests a balance between Western and Eastern perspectives on the topic of interest. A second tier of productive countries includes Türkiye, South Korea, Pakistan, and Canada, each contributing three publications (10.3%). This group demonstrates a broad geographical spread of research interest across Asia, North America, and the intersection of Europe and Asia. The third tier comprises Taiwan, Spain, South Africa, and the Netherlands, each producing two publications (6.9%), further emphasising the global nature of this research area. The geographic diversity in research contributions reflects the universal relevance of OCB and TI across healthcare systems, while highlighting the need for locally adapted solutions.



**Figure 5: Most Active Publishing Countries**

### *Collaborative Partnership Between Publishing Countries*

Table 11 highlights collaborative partnership strength across eight countries, with the United States and China leading with a total link strength (TLS) of 5.00, indicating their dominance in global research networks. Pakistan follows with a TLS of 4.00, suggesting active but slightly less extensive collaborations. Ireland and Malaysia share a TLS of 3.00, reflecting mid-level international engagement. Canada, with a TLS of 2.00, shows moderate collaborative strength, while Japan and Portugal, with the lowest TLS of 1.00 each, indicate limited international collaboration. The differences in TLS imply that countries with higher scores, like the United States and China, lead in research output and global influence through stronger international networks. Countries with lower TLS, such as Japan and Portugal, may have less impact on shaping global discourse in the related research field.

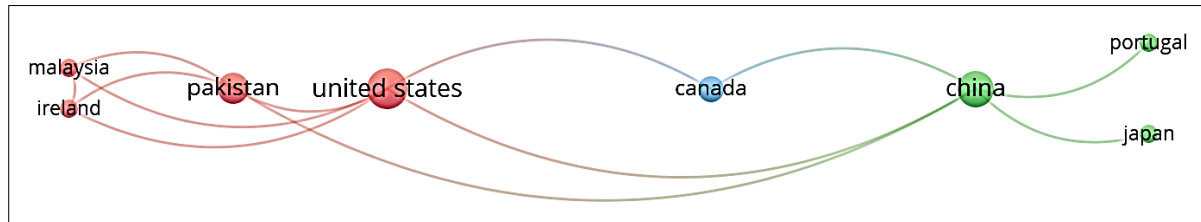
**Table 11: Collaborative Strength of Countries' Partnership**

Sources	TP	TC	TLS
United States	5	156	5.00
China	4	87	5.00
Pakistan	3	25	4.00
Ireland	1	1	3.00
Malaysia	1	2	3.00
Canada	2	178	2.00
Japan	1	0	1.00
Portugal	1	0	1.00

Notes: TP = total publications; TC = total citations; TLS = Total link strength

Figure 6 presents a network visualisation of collaborative partnerships in research publications, depicting the strength and connectivity between eight countries. The United States and China emerge as the central hubs, showcasing their highest collaboration levels and dominant role in driving global research networks. Pakistan shows notable collaboration, particularly with the United States, forming strong connections with other countries in the network. Ireland and Malaysia also display close cooperation, reflected by their proximity and shared link. Canada demonstrates moderate collaborative strength, linked to both the United States and China,

bridging the Western and Eastern research spheres. In contrast, Japan and Portugal show limited collaboration, primarily with China. Countries with stronger linkages, like the United States and China, exert significant influence, fostering a broad exchange of ideas. In contrast, countries with fewer collaborations, such as Japan and Portugal, potentially slow shared knowledge's progress across countries.



**Figure 6: Network Visualisation of the Countries' Collaboration in Publications**

## Discussion

The review reveals several critical insights regarding the evolution of research on OCB and TI, with a particular focus on healthcare settings. One notable trend is the increasing scholarly interest in OCB and its potential impact on employee retention in healthcare. The analysis provides valuable insights into the research trajectories in this field. Although research in this area dates back to the early 2000s, it has gained significant momentum, particularly in recent years, as reflected by a surge in both publications and citations. "Turnover intention" consistently emerges as a central keyword, indicating its pivotal role in healthcare research. The emergence of varied keywords used in later publications indicates that research is evolving and reflects a growing recognition of the complex interplay between OCB, TI, and various organisational and individual variables. This advancement in research has deepened the discussion on employee retention in healthcare and diversified the scopes that may be effective in tackling turnover challenges.

The review highlights several influential authors and countries driving research on OCB and TI in healthcare. Notably, the United States and China stand out as leading contributors, reflecting a cross-geographical interest in the dynamics of these concepts. Meanwhile, collaborative efforts among authors and partnerships between countries demonstrate the cooperative nature of this research. Strong collaborations between nations like the United States, China, and Pakistan promote cross-border knowledge sharing, advancing the field. In contrast, countries such as Japan and Portugal show weaker partnership strength, suggesting opportunities for further international collaboration in future research. Furthermore, the inclusion of various issues alongside OCB and TI reveals the interplay of organisational and individual factors in healthcare employee retention. This approach enhances our understanding of healthcare workforce dynamics, refining the previously rigid relationship between OCB and TI and expanding it to other emerging research areas.

Despite the progressive development of research throughout the trajectory, several significant research gaps are worthy of attention. First, despite the strong representation from nursing journals, there is limited integration with other healthcare disciplines, suggesting a need for broader healthcare workforce studies beyond nursing. The concentration of publications in nursing-specific journals may limit the dissemination of findings to broader management and healthcare policy audiences. Second, while established research hubs like the United States and

China dominate collaborations, there is notably limited engagement from other continents, indicating potential missed opportunities for diverse healthcare management perspectives. The low collaborative engagement from other countries also suggests an untapped potential for knowledge exchange and comparative studies in healthcare workforce management.

## Conclusion

This bibliometric analysis has uncovered significant patterns in the research landscape concerning OCB and TI in healthcare settings during the 21st century. The findings highlight an evolving research trajectory, with notable increases in publication activity between 2020 and 2021, although initial impactful works emerged around 2010. Keyword analysis reveals a progression from basic organisational concepts to more complex psychological and relational aspects of healthcare worker behaviours. This suggests promising directions for future studies, particularly in understanding the interplay between individual behaviours, employee well-being, and retention. Apart from the dominance of the United States and China in publications, nursing-focused journals indicate a concentration of research communities' attention on this group of healthcare professionals. The geographical concentration of research in certain regions also suggests untapped potential for cross-cultural studies and knowledge exchange, particularly from underrepresented areas. More diverse international collaborations and broader disciplinary perspectives are needed to address these gaps. Looking ahead, future research should also broaden its scope beyond nursing to include other healthcare professionals and explore the dynamics of OCB and TI across diverse medical professions and cultures. Additionally, research should focus on the combined impact of organisational and individual factors on OCB and TI in various healthcare settings.

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