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Predictive Analysis of Turnover Intentions among IT Professionals: A Bibliometric Approach utilising Web of Science Database (2002-2023)

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Abstract

Purpose: The aim of this bibliometric analysis was to determine the extent of research on turnover intentions among IT professionals and to assess the past study publication trends based on Web of Science (WoS) database.

Methodology: "Turnover Intention" and "IT" were two significant phrases that were employed between 2002 and 2023 using (WoS) database.1485 articles were evaluated using bibliometric analysis approach. The researchers examined five performance analysis indicators, including publications by prolific authors, cumulative publications, contributions from top universities, publishing houses, and countries. The minimum values for each indicator in the VOSviewer software were determined for data analysis. Scientific mapping was conducted on authors citation, co-citation analysis, bibliographic coupling, and co-occurrence of keywords.

Major findings: This study provided a prism through which IT industry may identify the challenges about turnover intentions. The authors with the most publications were De clercq, Dirk. Pierce et. al. received 571 total citations. Emerald Group Publishing house had published maximum 230 articles. State University System of Florida led with 40 publications. USA was among the top countries with maximum 368 articles published.

Practical Implications: The results of this study have important ramifications for IT professionals and managers of human resources. This study might provide a substantial contribution to the causes and intentions behind IT employee turnover.

Keywords: *Turnover Intentions, IT Professionals, Bibliometric Analysis, Web of Science, VOSviewer, Employee Turnover, Predictive Analysis*

Jel Classification Codes: M15, J28, O15

Introduction

(Aydogdu & Asikgil, 2011) define employee turnover as "the behavioral attitude of a person who desires withdraw from an organization;" Tett and Meyer define it as "a conscious and deliberate will to leave the organization".

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With regard to its measurement and control, turnover intention is defined as "the relationship between the number of employees replaced during a specific period of time in an organization or industry and the average number of employees in that organization or industry". Turnover is the assessment of an individual regarding the possibility of whether they are about to leave an organization.

Turnovers are classified as voluntary when workers choose to participate and involuntary when the organization is the driving force, according to (Allen, Bryant, & Vardaman, 2010).

The percentage of a company's workforce that quits within a given time frame is known as employee turnover. The computation can be performed for shorter or longer periods of time, albeit the annual turnover rate is the most common expression.

Turnover Intentions: Although there are various reasons why workers leave their jobs, there are generally five key areas that influence people's decisions to do so.

1. A bad fit between the individual and the position
2. A bad fit with the culture and atmosphere of the company
3. A mismatch in compensation and performance
4. A lacklustre rapport between the employee, their colleagues, and their manager
5. Limited prospects for development and progress

The following research questions (RQs) regarding turnover intentions in IT:

RQ1: Which author is the most effective and prolific?
RQ2: What is the year with the highest number of published papers?
RQ3: Which top universities published the most pertinent papers?
RQ4: Which publication houses have published most of the articles?
RQ5: Which countries have published the greatest number of articles?
RQ6: Which authors have received the highest citations?
RQ7: Which are the most cited journal sources?
RQ8: Which cited authors are co-cited the most?
RQ9: Which countries have the most bibliographic coupling networks?
RQ10: Which author keywords are most commonly used when publishing articles?

Literature Review

An employee's intention to leave the company willingly or go to a different workplace based on his own preferences is known as turnover intention (Shaheen & Gupta, 2017). Employees usually intend to leave their jobs because of their work experience or because their bosses or peers have disharmonious relationships (Reina, 2018);(Reknes, 2020).The main causes of high employee turnover intention include inadequate pay plans, unpleasant working conditions & culture, limited development & training opportunities, lack of job satisfaction, and work-related stress (Adam, 2015); (Agarwal & Ferratt, 2000);(Sharma & Aparicio, 2022).

The desire of the workforce to leave their positions or resign from organizations for a variety of reasons, including the desire to take a better position than they had at their prior employer, is known as turnover intention as per (Adnyani & Wulandari, 2016). (Huang & Su, 2016) supported the existence of a strong correlation between the intention to leave one's job, job happiness, and job security. The relationship between job satisfaction, organizational commitment, and the intention to leave is examined by (Jin, 2013).

Managers can create customized attention plans that enable avoiding or mitigating the intention of turnover, or lower the costs of staff turnover from a more proactive action that ensures a decrease in the negative impact of turnover, once the employees in the organization who may be susceptible to it are identified. (Alexander & Sa´nchez-Rodrı´, 2018)

Research Methodology

Search Strategy

The researchers performed bibliometric analysis on studies published on "Turnover Intentions" AND "IT". The primary data source for the VOSviewer software (version 1.6.15) is the WoS. 1502 articles came up from the initial search. The "All field" search criterion and time period filter were applied, the total number of documents was whittled down to 1485. Subject categories helped to further refine the papers. The papers in the fields of "management," "computer science and information science," business," economics," "industrial relations," “social sciences interdisciplinary,” "psychology", "management science operations research," "software engineering for computer science interdisciplinary applications,

"educational research," “public administration”, "Business finance," "multidisciplinary sciences," "social psychology," "Women studies, communication, experimental psychology," "computer science cybernetics," "developmental studies," "humanities multidisciplinary," "social issues," "social sciences mathematical models," "social work," "sociology," and "urban studies."

After the subject category filter was applied, 1485 studies were still present. Consequently, bibliometric analysis was performed on 1485 documents spanning the years 2002 through 2023. The downloaded file in tab-delimited format was used for data extraction. The search was conducted on 13th March 2024.

An overview of performance assessments and science mapping indicators is provided below:

i. Analysis of performance metrics': quantity of publications by most prolific authors, cumulative publications by year, publications by top universities, contributions from top publishing houses, and countries.
ii. Scientific Indicator mapping includes document wise citation analysis of top authors, most cited journals, co-citation of most cited authors, bibliographic coupling of universities, and co-occurrence of all keywords.

Data Extraction

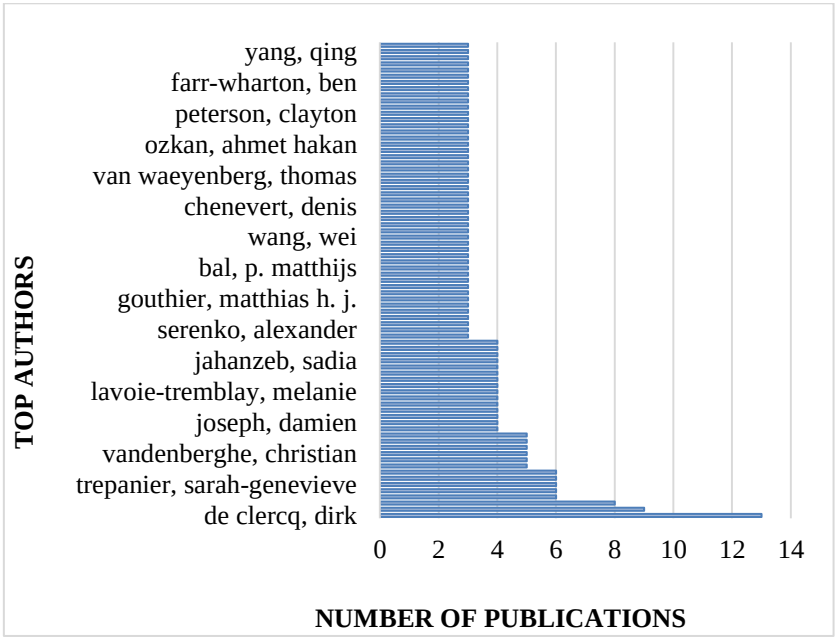
The WoS database is used to extract data. The process's next several stages are completed in that order. The first stage entails gaining access to the WoS database and following the directions for completing the first row of keywords. The “turnover intentions” was chosen as "all fields" in the second row, while IT industry was picked as "all fields." After the period and subject area filters were applied, 1485 study results were still present. The downloaded file was in tab-delimited format. All of the performance analysis metrics were computed using the retrieved WoS database. A computer program called VOSviewer was used to perform several scientific analyses.

Results & Discussions

Performance Analysis

1) The quantity of publications the most prolific writers have published

Figure 1. *The Publications of the most Prolific Writers*

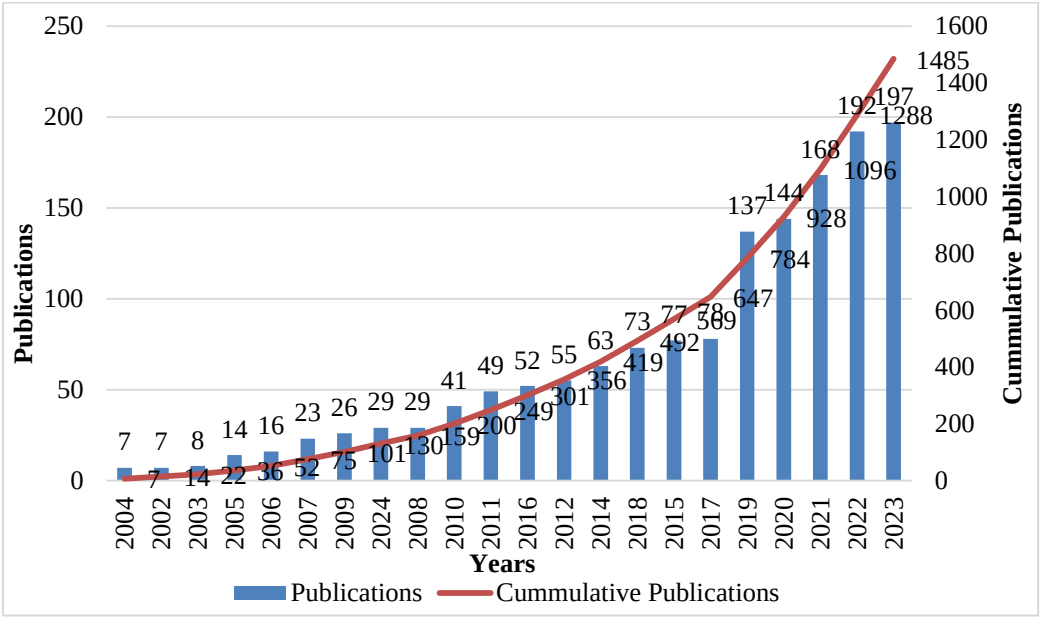


Source: WOS database

Figure 1: displays the publications by the most prolific writers with minimum 3 papers published and analysed at 78 authors.

2) *Cumulative publications by year*

Figure 2. *Cummulative publications by year*



Source: WOS database

A combo chart from 2002 until 2023, the total number of publications that climbed gradually from 7 to 1485 has been analysed in Figure 2.

3. *Publications by Top 10 Universities*

Figure 3. *Top 10 Universities*

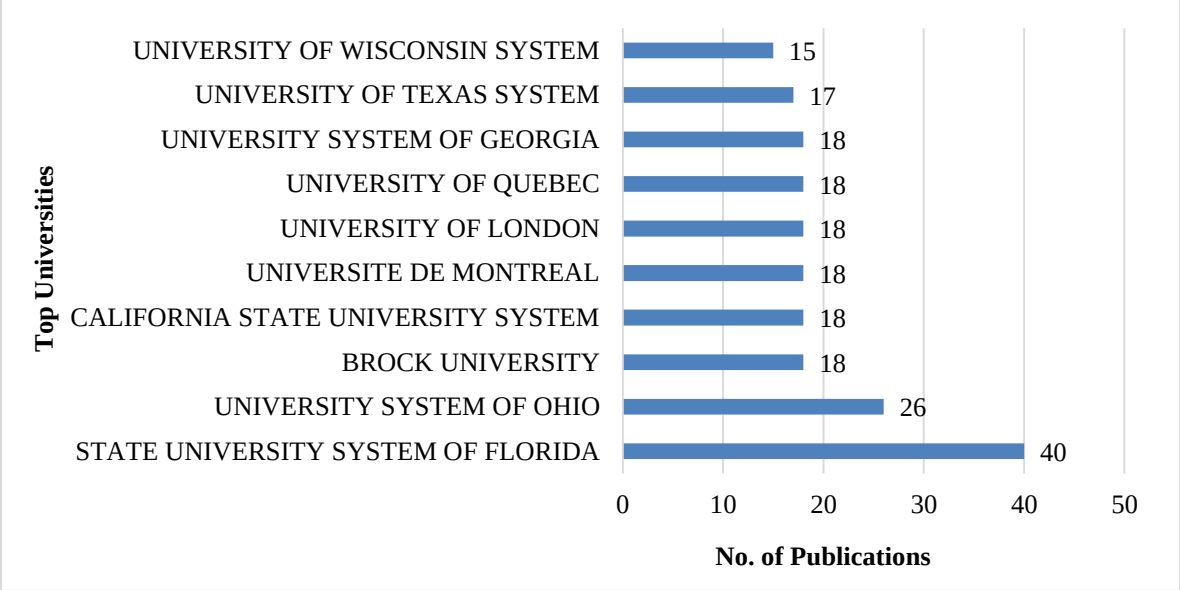
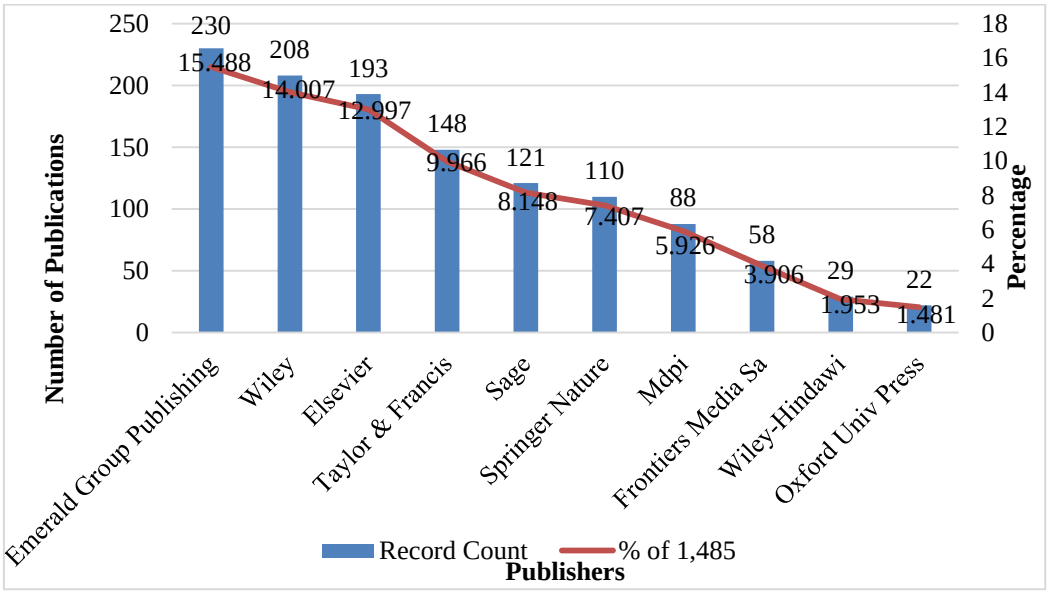


Figure 3. shows top 10 Universities that have published most articles amongst 1877 with 392 universities published minimum 3 articles.

4. Top 10 Publication Houses

Figure 4. *Top 10 Publishing Houses*



Source: WOS database

Figure 4. Top 10 publishing houses with the highest number of papers published

The top 10 publishing houses from 114 different publishers with a maximum of 230 papers, and a minimum of 22 publications are shown in Figure 4.

5. Top Countries with greatest number of papers published

Figure 5. *Top countries with greatest number of papers published*

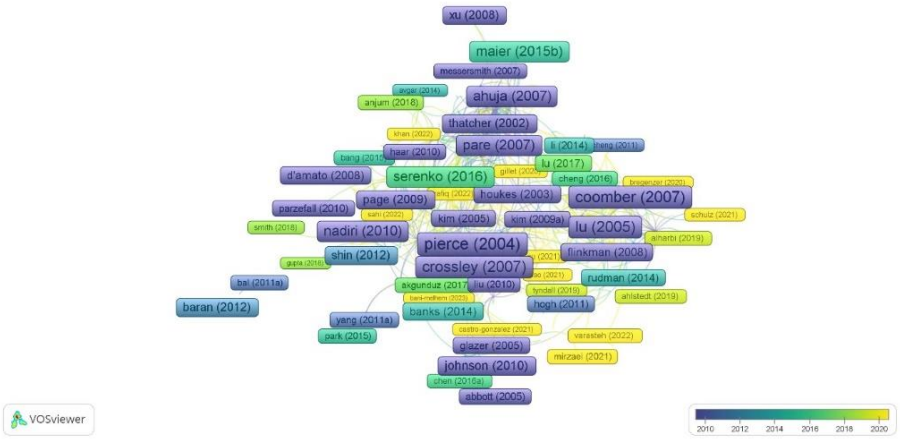
Source: WOS database

Figure 5. displays the top countries having the greatest number of papers published

Scientific Mapping

6. Document wise citation analysis of top authors

Figure 6. *Document wise Citation Analysis of Top Authors*

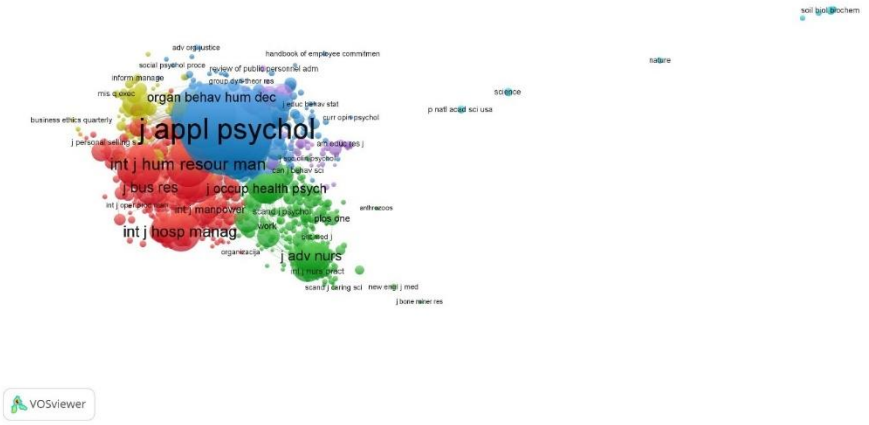


Source: WOS database

Figure 6. shows the document wise citation analysis of top authors
An overlay visualisation with the minimum number of citations of authors threshold as 3.

7. Co-citation Analysis of Most Cited Journals

Figure 7. *Co-citation Analysis of Most Cited Journals*

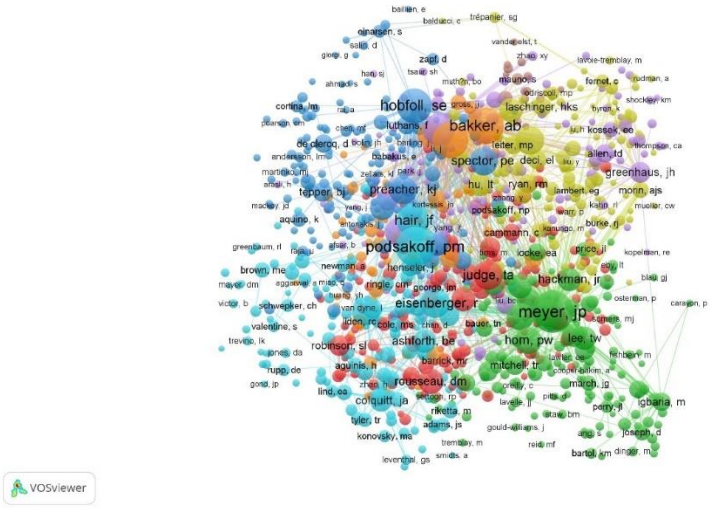


Source: WOS database

Figure 7. shows the Co-citation analysis of most cited journals
Network visualisation is shown in Figure 7, out of 19918 sources, 3492 meet the threshold & the number of sources selected is 1000.

8. Co-citation Analysis of Most Cited Authors

Figure 8. *Co-citation Analysis of Most Cited Authors*

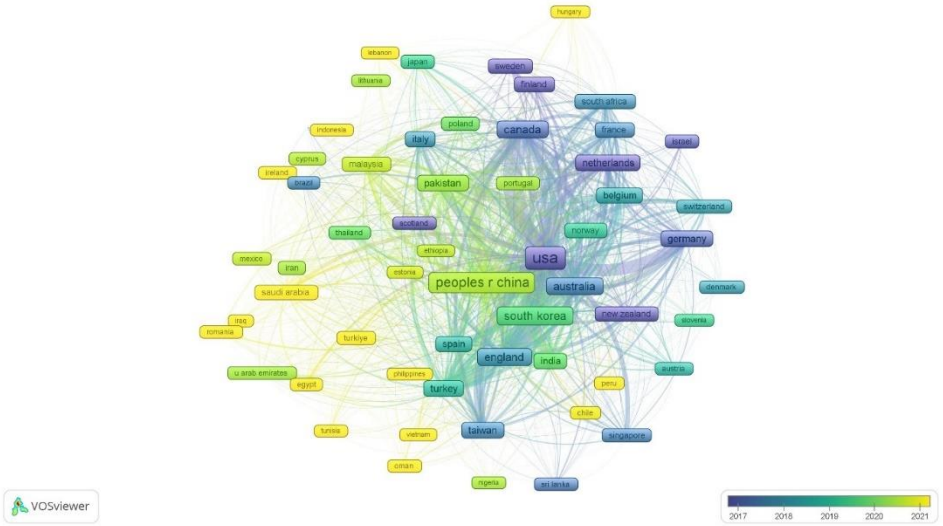


Source: WOS database

In Figure 8. out of 38770 authors, 7255 meet the threshold. & the number of authors selected is 1000.

9. Bibliographic Coupling of Top 10 Countries

Figure 9. *Bibliographic Coupling of Top 10 Countries*



Source: WOS database

Figure 9. displays bibliographic coupling of top 10 countries' overlay visualisation where 8 out of 84 countries, 60 meet the threshold.

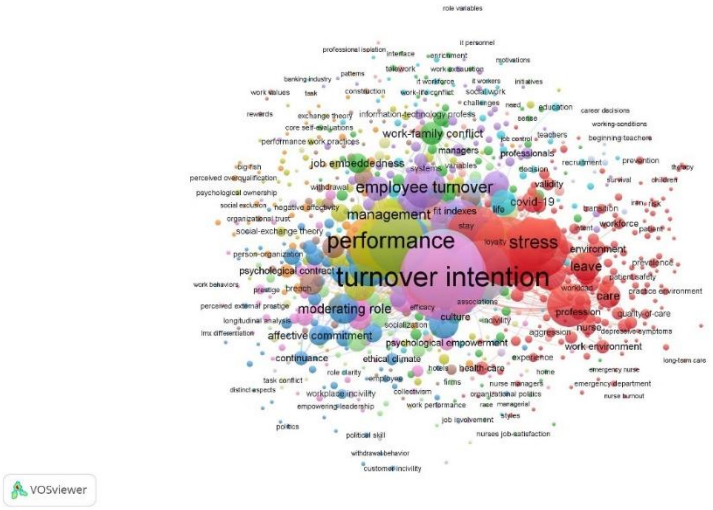
Table 1. *Bibliographic Coupling of Countries*

#	Country	Documents	Citations	Total Link Strength	#	Country	Documents	Citations	Total Link Strength
1	USA	368	12557	939	11	ITALY	36	1058	126
2	PEOPLES R CHINA	243	4766	774	12	SWEDEN	23	1000	72

3	ENGLAND	101	4386	404	13	INDIA	42	969	152
4	CANADA	109	3768	383	14	BELGIUM	37	881	85
5	AUSTRALIA	112	2682	337	15	SWITZERLAND	18	857	78
6	GERMANY	63	2657	194	16	TAIWAN	52	841	177
7	NETHERLANDS	55	2129	160	17	SPAIN	39	775	128
8	TURKEY	70	1973	393	18	NEW ZEALAND	24	770	101
9	SOUTH KOREA	123	1946	355	19	FINLAND	23	762	101
10	PAKISTAN	66	1521	335	20	FRANCE	33	748	103

10. Co-occurrence of All Keywords

Figure 10. *Co-occurrence of All Keywords*



Source: WOS database

Co-occurrence of all keywords out of 5212, 903 keywords that meet the threshold is displayed in Figure 10.

Table 2. *Keywords co-occur with the most commonly used keywords*

#	Keywords	Occurrence	Total Link Strength	#	Keywords	Occurrence	Total Link Strength
1	turnover intention	483	4565	11	commitment	224	2297
2	job-satisfaction	405	3968	12	model	218	2190
3	turnover	331	3091	13	satisfaction	212	2104
4	performance	310	3162	14	antecedents	191	1961
5	turnover intentions	279	2820	15	stress	182	1803
6	work	264	2575	16	nurses	154	1421
7	job satisfaction	262	2637	17	employee turnover	146	1423
8	burnout	254	2501	18	mediating role	136	1436
9	organizational commitment	239	2414	19	work engagement	127	1341
10	impact	238	2337	20	Metaanalysis	126	1299

Conclusion

The researchers answer the first five research questions (RQs) based on performance bibliometric analysis. Figure 1. displays the most prolific authors De clercq, Dirk have published 13 articles out of 78 authors. Peaking at 1485

publications in 2023, Figure 2. shows combo chart of cumulative publications by year increased steadily. Figure 3. represents top ten universities among 1877, with State University System of Florida leading with 40 publications, followed by University System of Ohio 26, California State University System, 18 and so on. Figure 4. represents that the maximum number of papers published were 230 by Emerald Group Publishing, 208 by Wiley, 193 by Elsevier, 148 by Taylor & Francis, 121 each by Sage and 110 Springer Nature and so on. Figure 5. shows the top countries having the greatest number of papers published in the world map.

The Scientific mapping answers the last five research questions (RQs). Figure 6. includes document wise citation analysis of top authors in network visualisation. Figure 7. displays co-citation of most cited journals; Frontiers in Psychology has published maximum 47 papers. Co-citation of most cited authors is represented in Figure 8. Meyer, Jp has maximum 533 citations and total links strength of 18702, followed by Podsakoff, Pm with 466 citations and total links strength of 16487 and so on. Figure 9. shows bibliographic coupling of countries. Table 1. represents the USA leads with (368) papers; followed by the People's Republic of China (243); India (42) and so on. Figure 10. includes co-occurrence of all keywords of the subject area. Table 2. demonstrates that keyword “turnover intention” occurred (483) times; “job-satisfaction” (405); “turnover” (331) times and so on.

The present bibliometric analysis offers significant insights based on past & current publication trends and socioeconomic position. This study presents a perspective through which IT industry may identify the legitimate concerns and challenges about employee turnover intentions. IT companies should offer competitive salaries, ample possibilities for professional development, work that facilitates the effective use of employees' skills, and competent managerial direction in order to retain employees. This study provides the most potential areas for future research and offers recommendations for fostering the development and retention of IT professionals.

Limitations and Future Study

A constraint of the study was its restriction to papers indexed in WoS, which does not include all journals. As a result, articles from other databases, such as Scopus and PubMed, might have gone unnoticed. Furthermore, the researchers limited the inclusion of papers written in English, which could create publication bias. Future research could use bibliometric analysis with distinct datasets, keywords, and target demographics from different geographical areas.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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