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# MAPPING THE SCIENTIFIC LANDSCAPE OF PATIENT SAFETY WALKROUNDS: A BIBLIOMETRIC REVIEW

## Memetakan Lanskap Ilmiah Keselamatan Pasien: Tinjauan Bibliometrik

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**ABSTRACT**
This study seeks to thoroughly map the scientific discourse on patient safety walkarounds by conducting an extensive bibliometric assessment. A Scopus search was performed for English-language publications containing the terms “patient safety” AND (“leadership walkround*” OR “walkarounds” OR “walk-around”). Thirty-three documents published between 2004 and 2024 were identified, averaging 1.65 publications per year, with the highest output in 2014. The United States produced the most literature, followed by the United Kingdom. The Joint Commission Journal on Quality & Patient Safety and BMJ Quality & Safety were the primary publication venues, and Frankel, A. emerged as the most productive author. Keyword mapping showed three dominant thematic clusters: (1) safety and leadership, (2) organizational culture, and (3) humans. Recent density patterns indicate rising attention to the first two themes. Publication trends demonstrate uneven and fluctuating growth. Patient safety culture is strongly linked to walkarounds, safety management, patient safety, organizational culture, and leadership.

**Keywords**: *Patient safety leadership walkarounds, Patient safety culture, Bibliometric*

**ABSTRAK**
Studi ini bertujuan untuk memetakan secara menyeluruh wacana ilmiah tentang inspeksi keselamatan pasien dengan melakukan penilaian bibliometrik yang ekstensif. Pencarian Scopus dilakukan untuk publikasi berbahasa Inggris yang berisi istilah “keselamatan pasien” DAN (“inspeksi kepemimpinan*” ATAU “inspeksi” ATAU “walk-around”). Tiga puluh tiga dokumen yang diterbitkan antara tahun 2004 dan 2024 diidentifikasi, dengan rata-rata 1,65 publikasi per tahun, dengan output tertinggi pada tahun 2014. Amerika Serikat menghasilkan literatur terbanyak, diikuti oleh Inggris Raya. Joint Commission Journal on Quality & Patient Safety dan BMJ Quality & Safety adalah tempat publikasi utama, dan Frankel, A. muncul sebagai penulis yang paling produktif. Pemetaan kata kunci menunjukkan tiga kelompok tematik dominan: (1) keselamatan dan kepemimpinan, (2) budaya organisasi, dan (3) manusia. Pola kepadatan terkini menunjukkan peningkatan perhatian pada dua tema pertama. Tren publikasi menunjukkan pertumbuhan yang tidak merata dan berfluktuasi. Budaya keselamatan pasien sangat terkait dengan inspeksi, manajemen keselamatan, keselamatan pasien, budaya organisasi, dan kepemimpinan.

**Kata kunci**: *Inspeksi lapangan kepemimpinan keselamatan pasien, Budaya keselamatan pasien, Bibliometrik*

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## INTRODUCTION

The 2024 Global Patient Safety Report from the World Health Organization indicates that nearly ten percent of patients still encounter harm in healthcare environments, with roughly half of these incidents being preventable through the application of strong safety management practices (WHO 2024). Well before this recent evidence, concerns regarding patient safety had already gained widespread attention following the Institute of Medicine's landmark publication To Err Is Human in 1999, which reported that approximately 98,000 deaths in the United States each year stemmed from avoidable medical errors (Kang et al. 2021). This revelation elevated patient safety to a prominent priority for health systems worldwide. As part of the global response, the Institute of Healthcare Improvement convened a group of patient safety experts in 2000 to develop a model for an improved medication system (Sølvtofte et al. 2017; Ahn et al. 2025). Consequently, hospitals are increasingly required to ensure high-quality care and safeguard patients from preventable harm. Within the larger framework of healthcare delivery, patient safety serves as a foundational element aimed at minimizing risks, reducing mistakes, and preventing injury during clinical processes (Wu and Busch 2019; Abdollahi 2024).

Patient safety extends beyond clinical tasks, relying heavily on organizational processes and leadership, as a strong safety focus improves care quality, reduces avoidable costs, and enhances public trust (Jaya and Darmawan 2023). Its effectiveness depends not only on clinical practice but also on leadership and system design, with evidence showing that solid safety cultures boost service quality, minimize preventable expenditures, and strengthen institutional credibility (Albaalharith and A'aqoulah 2023). Such cultures develop through shared perceptions and behaviors among healthcare workers (Demeke et al. 2025). and consist of seven key subcultures: leadership, teamwork, communication, organizational learning, just culture, evidence-based practice, and patient-centeredness (Wang and Dewing 2021). Within this landscape, Patient Safety Leadership WalkRounds (PSWR) have become a leading leadership strategy, promoting open communication, learning from incidents, and trust between executives and frontline staff; originally introduced by Allan Frankel, PSWR function as structured, routine visits to strengthen safety culture and identify real-time safety risks (Martin et al. 2014).

Furthermore, the cultivation of a safety culture is widely recognized as a basic condition for advancing patient safety, as it represents the shared attitudes, skills, perceptions, knowledge, and behaviors that determine how safety practices are carried out (Gallo and De La Cruz 2025). Because it spans interactions among staff and leaders at all organizational levels, safety culture is viewed as a complex, multidimensional construct closely linked to patient safety outcomes. A qualitative synthesis highlights seven related components of this culture: leadership, teamwork, evidence-based practice, communication, learning, just culture, and patient-centeredness (de Carvalho et al. 2023). Qualitative studies on Patient Safety WalkRounds (PSWR) similarly show that these rounds strengthen leaders' understanding of safety challenges and make staff more open in discussing concerns. Since being introduced in 2003, PSWR has been used as an organizational tactic to promote patient safety and reinforce a strong safety culture (Sølvtofte et al. 2017; González et al. 2023). Developed by Allan Frankel, PSWR was designed as a structured approach aimed at supporting patient safety culture (Klimmeck et al. 2021). In daily practice, PSWR involve regular visits by leadership teams—often joined by area nurses and available staff—to ask about adverse events, near misses, and contributing system factors (Sexton et al. 2018). Growing evidence indicates that PSWR improve patient safety, strengthen readiness for quality improvement, decrease emotional exhaustion, and support work–life balance (Sexton et al. 2021), reinforcing broader awareness that psychological safety is essential for performance, reliability, quality care, and patient safety (Adair et al. 2022).

Bibliometric methodologies provide a powerful means of identifying developmental trajectories, recognizing productivity patterns, and evaluating the broader influence

of scientific outputs within a given research field, offering a clearer picture of current progress and emerging gaps. Bibliometrics is a field that measures scientific activity by examining connections among authors, research groups, institutions, and countries, as well as their collaboration patterns (Meliala et al. 2024). These approaches have become key analytical tools for mapping publication trends, research collaborations, and thematic evolution within PSWR scholarship (Foster et al. 2023). Although many studies have examined patient safety and safety culture—including several bibliometric reviews—the expanding literature on PSWR over the past two decades has not been matched by a dedicated bibliometric assessment, highlighting the need for such analysis. Accordingly, this study aims to identify and analyze scholarly assessments of PSWR from 2004 to 2024. Through this review, influential contributors, active research directions, and emerging areas of interest can be more readily detected, strengthening foundational knowledge in the field. Applying bibliometric techniques also helps illustrate how leadership involvement, safety culture, and organizational learning intersect to support safer and more resilient healthcare systems.

## MATERIALS AND METHODS

We used a descriptive design based on a bibliometric review of Scopus-indexed publications from the past two decades, beginning with an initial dataset of about 45 documents. Record selection followed the PRISMA approach, a guideline that strengthens transparency in search processes, study screening, and data reporting (Page et al. 2021; Pham and Le 2024). Researches were conducted in May 2025 for English-language works published between 2004 and 2024, applying the identification, screening, and inclusion steps outlined by Page et al:

### Identification

The main search applied the query TITLE-ABS-KEY (patient) AND TITLE-ABS-KEY (safety) AND TITLE-ABS-KEY (walkrounds), which produced 45 records. Limiting the results to publications from 2004–2024 left 43 items, and applying an English-language filter reduced the set to 39. These remaining records, spanning articles, reviews, book chapters, editorials, conference papers, and letters, were then assessed for their alignment with the study's inclusion criteria.

### Screening

Publications such as reviews, editorials, book chapters, and letters were removed because they do not offer original empirical data and contribute minimally to mapping research trends. This filtering step reduced the pool to 33 documents.

### Inclusion

The abstracts of the remaining manuscripts were reviewed to ensure alignment with the aims of the bibliometric assessment, confirming 33 publications for final analysis, all of which remained relevant after full-text evaluation (Figure 1).

The analytic process then employed Scopus indicators alongside VOSviewer 1.6.20 to visualize author linkages and thematic structures (Gallo and De La Cruz 2025). with results organized by key bibliometric indices such as publication trends, author productivity, co-authorship, journal contributions, and scientific influence. This analysis revealed notable patterns of collaboration and dissemination, highlighted leading authors and impactful journals, and clarified the field's current structure while guiding future research directions.

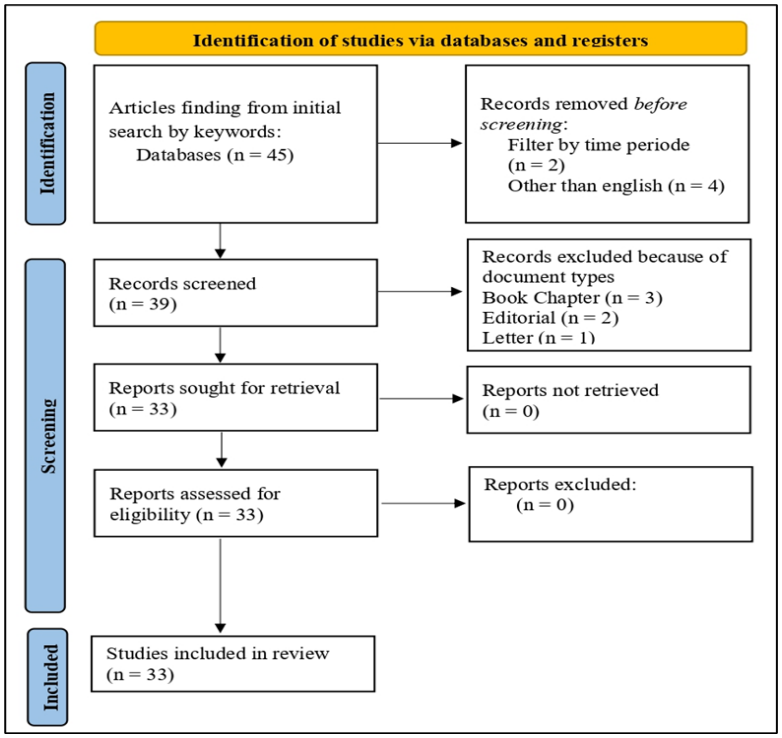



**Figure 1.** PRISMA flowchart

## RESULTS AND DISCUSSION

### Publication trends

The development of PSWR research from 2004 to 2024 did not follow a consistent upward trend but instead showed a cyclical pattern with alternating periods of growth and decline. As shown in Figure 2, publication numbers fluctuated irregularly, peaking in 2014 with five articles and experiencing another moderate increase in 2021. Across the 20-year period, 33 articles were published, averaging 1.65 per year and yielding a compound annual growth rate (CAGR) of 4.2%. Annual output varied between zero and five publications, with active contributions in 15 years and no publications in five others, likely reflecting changing research priorities, collaborative dynamics, or other professional demands. Despite these fluctuations, the overall trend indicates ongoing scholarly engagement, blending periods of steady productivity with intervals of variable output.

| Year | Publications | % of Total | Cumulative | Total Citations | Avg Citations |
|---|---|---|---|---|---|
| 2005 | 3 | 9.1% | 3 | 113 | 37.7 |
| 2006 | 1 | 3.0% | 4 | 226 | 226.0 |
| 2007 | 1 | 3.0% | 5 | 16 | 16.0 |
| 2008 | 3 | 9.1% | 8 | 142 | 47.3 |
| 2009 | 0 | 0.0% | 8 | 0 | - |
| 2010 | 1 | 3.0% | 9 | 18 | 18.0 |
| 2011 | 0 | 0.0% | 9 | 0 | - |
| 2012 | 0 | 0.0% | 9 | 0 | - |
| 2013 | 3 | 9.1% | 12 | 56 | 18.7 |
| 2014 | 5 | 15.2% | 17 | 121 | 24.2 |
| 2015 | 0 | 0.0% | 17 | 0 | - |
| 2016 | 3 | 9.1% | 20 | 16 | 5.3 |
| 2017 | 2 | 6.1% | 22 | 83 | 41.5 |
| 2018 | 1 | 3.0% | 23 | 139 | 139.0 |
| 2019 | 2 | 6.1% | 25 | 10 | 5.0 |
| 2020 | 0 | 0.0% | 25 | 0 | - |
| 2021 | 3 | 9.1% | 28 | 35 | 11.7 |
| 2022 | 2 | 6.1% | 30 | 22 | 11.0 |
| 2023 | 1 | 3.0% | 31 | 0 | 0.0 |
| 2024 | 2 | 6.1% | 33 | 4 | 2.0 |

**Figure 2.** Publication numbers

Citation analysis shows that PSWR research had its greatest impact in 2006, accounting for 226 of the total 1,001 citations (22.5%), followed by 2008 (14.2%), 2018 (13.8%), and 2014 (12.1%). These peaks indicate that publications from certain years exert a lasting influence on the field. Methodologically, quantitative studies were the most prevalent, representing 51.5% (n = 17) and focusing on tool development, validation, and outcomes related to PSWR. Qualitative approaches made up 33.3% (n = 11), mixed-methods studies 9.1% (n = 3), and two articles could not be classified due to insufficient information.

Keyword analysis identified three main thematic clusters, shown in Figure 3 with blue, green, and red colors. The Blue Cluster (Patient Safety and Quality) includes terms such as patient safety, leadership, quality improvement, healthcare quality, communication, and total quality management, emphasizing leadership, quality enhancement, and safety oversight. The Green Cluster (Safety Systems and Organizational Management) covers concepts like safety management, organizational processes, error reduction, hospital operations, and human factors, highlighting institutional strategies and internal mechanisms to prevent errors. The Red Cluster (Clinical Research and Demographics) features keywords such as questionnaire, adult, male, female, professional collaboration, healthcare personnel, and cross-sectional study, reflecting a focus on quantitative, cross-sectional research and demographic characteristics. Overall, the visualization indicates that leadership, safety, and patient safety form the conceptual core, while surveys and cross-sectional designs dominate empirical approaches, showing that PSWR research centers on leadership-driven improvements in safety culture evaluated through systematic quantitative methods.

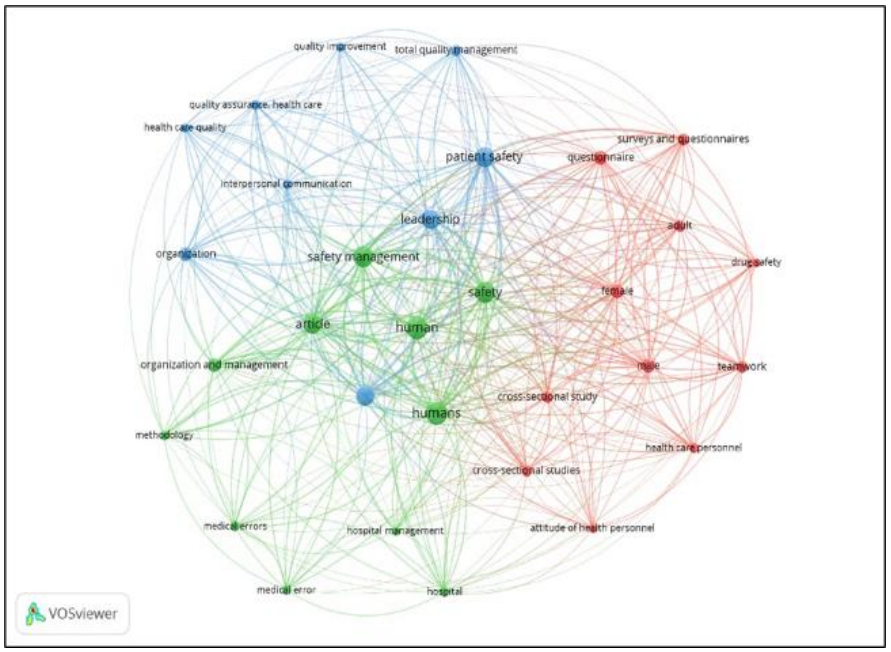



**Figure 3.** VOS viewer software version 1.6.20 of co-occurance index keyword

## Author productivity

Author productivity analysis showed strong engagement with PSWR, identifying 139 contributors across the 33 reviewed articles. The most prolific and influential authors were J.B. Sexton and A. Frankel from Duke University, USA, each publishing seven articles, accounting for 21.2% of the total. Sexton's work received the highest citation impact with 385 citations, while Frankel's publications maintained significant influence with 284 citations. Other notable contributors included R. Schwendimann from the University of Basel, Switzerland, and K.C. Adair from Duke University, each with four publications and citation counts of 258 and 266, respectively (Figure 4).

| Rank | Author | Publications | % of Corpus | Total Citations | Avg Citations | H-Index | Primary Affiliation |
|---|---|---|---|---|---|---|---|
| 1 | Frankel, A. | 7 | 21.2% | 284 | 40.6 | 7 | Duke University |
| 2 | Sexton, J.B. | 7 | 21.2% | 385 | 55.0 | 6 | Duke University |
| 3 | Schwendimann, R. | 4 | 12.1% | 258 | 64.5 | 4 | University of Basel |
| 4 | Adair, K.C. | 4 | 12.1% | 266 | 66.5 | 4 | Duke University |
| 5 | Profit, J. | 3 | 9.1% | 184 | 61.3 | 3 | Stanford University |
| 6 | Rehder, K.J. | 3 | 9.1% | 127 | 42.3 | 3 | Duke University |
| 7 | Leonard, M.W. | 2 | 6.1% | 365 | 182.5 | 2 | Multiple Affiliations |
| 8 | Thomas, E.J. | 2 | 6.1% | 206 | 103.0 | 2 | University of Texas |
| 9 | Bae, J. | 2 | 6.1% | 153 | 76.5 | 2 | Duke University |
| 10 | Proulx, J. | 2 | 6.1% | 215 | 107.5 | 2 | Duke University |

**Figure 4.** Author productivity

## Co-authorship network

Co-authorship, defined as the joint effort of two or more researchers on a publication, represents a key aspect of scientific collaboration, showing how scholars share expertise and advance knowledge together. In PSWR research, collaboration is common, with Adair K.C. and Sexton J.B. and Schwendimann R. and Sexton J.B. each producing four joint publications. Additional pairs—Rehder K.J. and Sexton J.B., Profit J. and Sexton J.B., and Frankel A. and Sexton J.B.—each contributed three shared works. Within this network, Sexton J.B. serves as the central collaborator, highlighting a pivotal role in guiding PSWR research and demonstrating how extensive partnerships can shape the field's trajectory and impact (Figure 5).

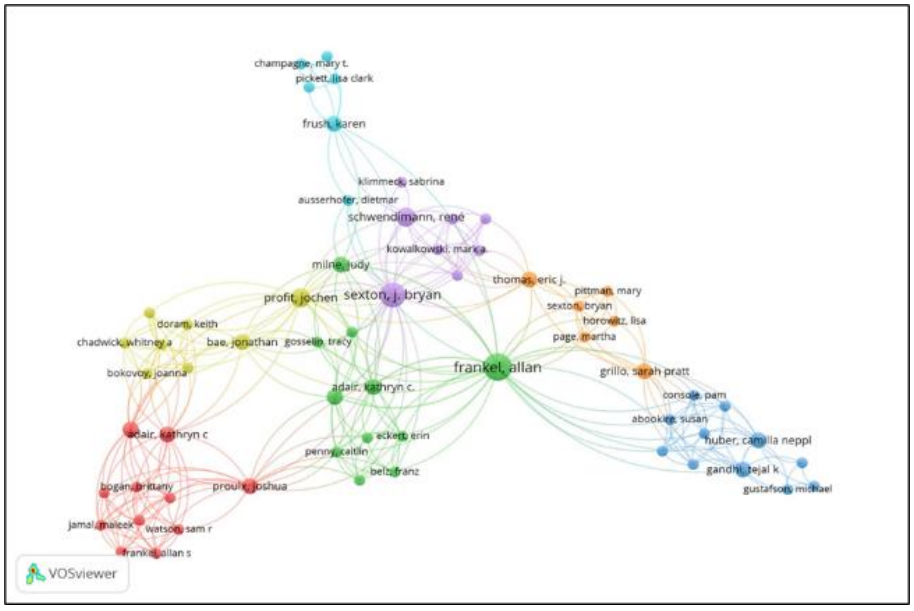



**Figure 5.** VOS viewer software version 1.6.20 of co-authorship network

Sexton J.B., Frankel A., Adair K.C., Schwendimann R., and Profit J. show strong interconnectedness, establishing themselves as the key contributors within the PSWR collaborative network. Their ongoing involvement underpins the scientific community in this field, fostering both innovative research and a culture of open communication and shared learning among practitioners (Figure 6).

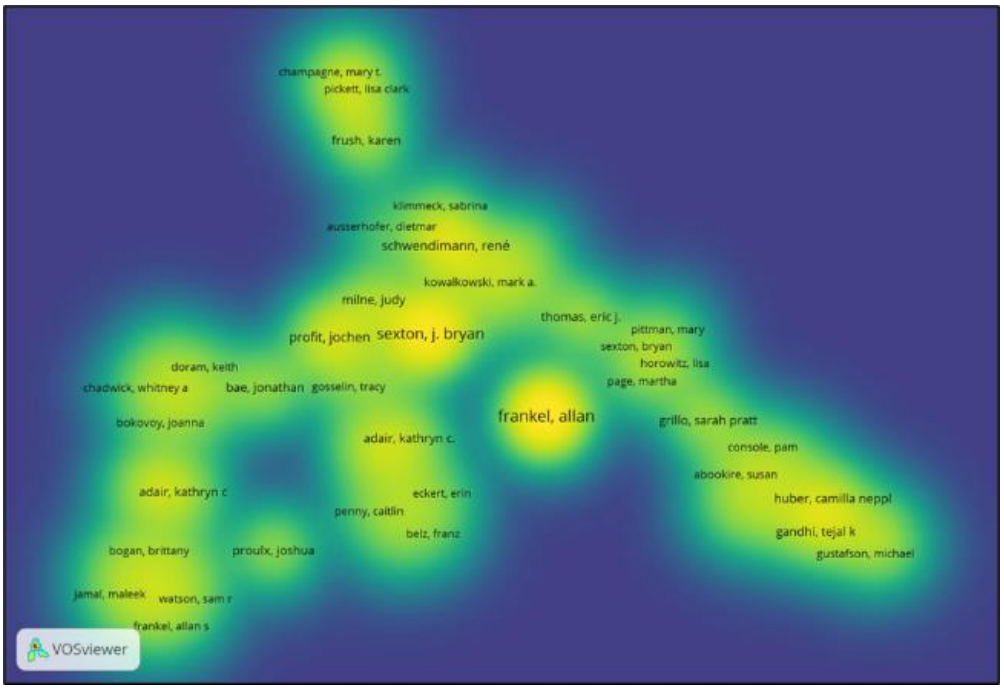



**Figure 6.** VOS viewer software version 1.6.20 of co-authorship density

**Journal productivity**

The publication landscape is notably concentrated, with two journals accounting for 32% of all articles, indicating a high centralization of scholarly output. Both Q1 journals focus on policy and patient safety, acting as key "gatekeepers" that influence the visibility and direction of PSWR research. The leading journals in this role are the Joint Commission Journal on Quality and Patient Safety (JCJQPS) and BMJ Quality & Safety (Figure 7).




**Figure 7.** Journal productivity

Over half of the author affiliations are located in the United States, reflecting PSWR's origins in initiatives led by the Joint Commission and major academic centers like Harvard/Mass General and Duke. The United Kingdom is the second-largest contributor to PSWR research (Figure 8).

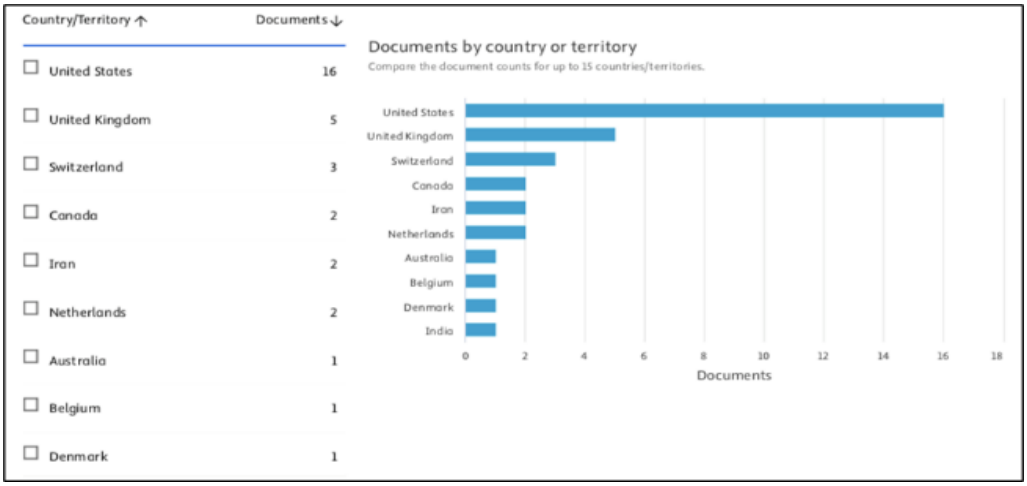



**Figure 8.** Documents by country or territory

## Discussion

The evaluation of Patient Safety WalkRounds (PSWR) has become a significant focus in research, with publications increasing steadily since 2003. Although first implemented at Brigham and Women's Hospital in January 2001, PSWR entered the literature through Frankel A. et al.'s initial 2003 study in the United States. PSWR is proposed as an effective approach to reinforce patient safety culture and reduce adverse events, which affect roughly one in ten hospitalized patients, most of them preventable. Evidence shows that stronger safety culture is linked to lower mortality, fewer readmissions, and reduced pressure ulcer rates (Sexton et al. 2021), while also improving patient experience and satisfaction. These findings have motivated hospitals to enhance safety culture, with PSWR emerging as a strategy to foster and disseminate safety practices and reinforce organizational commitment to patient safety (Chen et al. 2024).

The development of Patient Safety WalkRounds (PSWR) reflects a broader evolution in patient safety research, emphasizing the intertwined roles of leadership, organizational culture, and workforce well-being. Bibliometric evidence shows growing interdisciplinary engagement with PSWR, framing it as both an administrative tool and a cultural intervention. Studies indicate that WalkRounds, particularly when combined with systematic feedback, enhance teamwork, improve safety-related communication, and reduce burnout (Sexton et al. 2018). The active participation of senior leaders adds symbolic and practical value, reinforcing institutional commitment to safety, fostering psychological safety, and encouraging open dialogue. Leadership behaviors play a crucial role in determining whether WalkRounds function as genuine learning opportunities or are perceived as superficial routines (Ahmed et al. 2024). Additional evidence presented by Finn et al. (2024). Moreover, initiatives like PSWR positively impact healthcare staff by reducing emotional exhaustion, increasing job satisfaction, and strengthening team cohesion, which is particularly important given that emotional exhaustion strongly predicts compromised patient safety and lower quality of care in hospitals (Finn et al. 2024)

Patient Safety WalkRounds (PSWR) serve as a managerial strategy aimed at enhancing safety culture by fostering direct dialogue between frontline staff and senior leadership (Jarrett 2017). While evidence on their overall effectiveness is mixed, studies indicate that PSWR can strengthen safety culture and improve the safety climate by facilitating better communication, clearer understanding of safety issues, and broader adoption of safety practices (Adair et al. 2022). These interactions build trust and transparency, which are key to sustaining a strong safety culture (Sexton et al. 2021). However, outcomes depend heavily on implementation, as superficial or performative leadership engagement can discourage staff from sharing genuine concerns,

thereby limiting the effectiveness of PSWR (Amin et al. 2024).

The bibliometric landscape of patient safety culture (PSC) research reflects a rapidly growing, multidisciplinary field characterized by evolving thematic priorities, increased international collaboration, and stronger methodological approaches. Foundational analyses, such as Van Nunen et al. (2018) distinguished two main streams: general organizational safety culture and healthcare-specific PSC, highlighting leadership, communication, and human factors as key pillars. Expanding on this work (Huang and Wu 2025) mapped PSC literature from 2001 to 2023, identifying research clusters around “work environment,” “safety climate,” and “organizational learning,” and confirming the United States and the United Kingdom as primary contributors to the field

Our bibliometric analysis confirms that while interest in PSWR research has steadily increased, further development is needed to establish a standardized and comprehensive evidence base for PSWR practices. Strengthening this foundation is crucial not only for enhancing the effectiveness of PSWR but also for fostering robust safety cultures within healthcare organizations. Ongoing research and the sharing of best practices can support the creation of widely accepted guidelines that lead to measurable improvements in patient outcomes. Early studies using both quantitative and qualitative methods indicate that PSWR helps identify practical issues related to workload, resources, and communication, while promoting principles of just culture, teamwork, and effective communication. Additionally, PSWR aligns the perspectives of frontline staff and leadership by leveraging adverse event data. The following section explores the impact of PSWR on safety outcomes and patient safety culture.

The bibliometric analysis identifies three phases in PSWR research: the first established foundational concepts (pre-Frankel and Gandhi), the second examined implementation and impact on patient safety culture using tools like HSOPSC and SAQ (Sexton and Adair), and the third addresses contemporary applications, including resilience, well-being, burnout prevention, and new instruments like the Psychological Safety Scale within SCORE (Amin and Chen). The United States and United Kingdom lead global contributions, with major publications in JCJQPS and BMJ Quality & Safety, and key institutions like Duke University. Collaborative networks dominate over isolated efforts, highlighting the importance of interdisciplinary engagement. Overall, findings emphasize that leadership, organizational culture, and safety management are central to strengthening patient safety culture, and ongoing progress relies on collaborative scientific efforts to improve patient outcomes.

Bibliometric evidence shows that PSWR research is geographically concentrated, with the United States and United Kingdom producing most publications and citations, reflecting its origins in Joint Commission initiatives and institutions like Duke and Harvard. However, emerging contributions from Asia and the Middle East, such as studies by Amin et al. (2024) in Iran and Chen et al. (2024), indicate growing global interest. These studies expand PSWR scholarship into areas like resilience, well-being, and adaptive leadership, highlighting the need to tailor implementation to diverse cultural and institutional contexts. Future research, as suggested by Foster et al. (2023), should emphasize cross-institutional collaboration, longitudinal designs, and multinational benchmarking to develop standardized, globally relevant protocols that enhance patient safety culture.

## CONCLUSION

The bibliometric analysis of PSWR research from 2004 to 2024 reveals fluctuating annual publication patterns, with a notable peak in 2014 and a smaller rise in 2021, while scholarly activity remains largely concentrated in the United States and the United Kingdom. This concentration underscores the need to expand research in underrepresented regions, particularly Asia, where contextual insights can inform strategies to strengthen patient safety. The findings highlight the close link between PSWR and organizational functioning, continuous improvement, and the importance of co-authorship networks in fostering interdisciplinary collaboration that advances both

knowledge production and practical application. Overall, this study underscores the ongoing value of PSWR as a strategy to reinforce safety culture, create safer work environments, and reduce adverse events. As the first comprehensive mapping of PSWR literature, it illuminates existing research groups, collaboration patterns, and gaps that require further investigation, with emerging contributions from Asia and middle-income countries expected to enhance the global relevance of PSWR and support innovations in implementation and outcome measurement.

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