The relationship between leadership, psychological safety, and innovation: A bibliometric review analysis

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Abstract

This study aims to explore the relationship between leadership styles, psychological safety, and innovation by conducting a bibliometric analysis of existing literature. The research seeks to identify key trends, knowledge gaps, and the impact of leadership behavior on fostering trust and innovation within organizations. A bibliometric review was conducted using 48 articles sourced from the SCOPUS database. The analysis was performed utilizing the VOSviewer software and the PRISMA method to systematically identify relevant literature and assess thematic relationships among leadership, psychological safety, and innovation. The findings indicate that leadership behavior plays a significant role in fostering psychological safety, which in turn enhances innovation within organizations. However, a gap in the literature was identified regarding the mechanisms through which leadership sustains psychological safety and facilitates innovation over time. This study underscores the critical role of leadership in shaping an organizational climate that supports psychological safety and innovation. Addressing the existing research gap will provide deeper insights into effective leadership practices that enhance innovative capabilities. The findings suggest the need for leadership development programs that equip leaders with the necessary skills to cultivate psychologically safe work environments, thereby maximizing organizational innovation potential. These insights offer valuable guidance for both researchers and practitioners in the leadership and organizational development fields.

Keywords: Bibliometric, VOSviewer, Innovative, Employee innovative behavior, Leadership, PRISMA, Psychological safety.

1. Introduction

Effective leadership, psychological safety, and innovation are key to a productive organizational culture [1]. Transformational leaders enhance employee engagement and productivity through vision and communication [1]. Leadership also promotes innovation by encouraging risk-taking and continuous improvement [2]. Psychological safety, where employees can speak freely without fear, is vital for well-being and team synergy [3, 4]. Innovation, whether product, process, or business model, is crucial for organizational success and competitiveness [5]. Leadership fosters a culture of innovation by setting vision, encouraging innovative thinking, and supporting experimentation [6]. A review of bibliometrics, then, uncovers the valuable connection existing among leadership, psychological safety and innovation; it does so through a thorough examination of available resources as well as spotting trends and loopholes in research. When studying how leaders who are effective promote psychological safety and also the impact that psychological safety has on innovation, plus ways organizations can use leadership to improve both, this paper seeks to foster an enhanced appreciation on the interplay of these factors shaping organizational dynamics, which impinges performance.

2. Literature Review

2.1. Leadership

2.1.1. What are the Key Characteristics of Effective Leaders?

Effective leaders exhibit core traits that differentiate them from others, such as openness to change, adaptability, and risk-taking with courage and self-confidence [7, 8]. They possess a creative and innovative mindset, addressing obstacles with perseverance and problem-solving capabilities [7, 9]. Communication and management skills are crucial for articulating vision, collaborating with others, and inspiring teams [7, 10]. Moreover, ethical behavior and emotional intelligence, marked by integrity, self-awareness, respect, compassion, and resilience, are essential qualities of effective leaders [10, 11]. Leadership is about creating direction, alignment, and commitment within a group, highlighting its collaborative nature [12]. Effective leaders are self-aware, recognizing their strengths, weaknesses, and influence on others, and they lead by example, encouraging innovation [13]. At the end of the day, effective leadership is defined by communication skills that enable unbiased decision-making, empathy, and avoidance of emotional biases [7, 13].

2.1.2. How Does Leadership Style Impact Team Performance?

Leadership style significantly impacts team performance by influencing group dynamics and member interactions. Effective leaders focus on personal growth, motivation, and future vision to enhance performance [12, 14]. Unlike managers who meet expectations, leaders drive teams to exceed them and promote innovation [12, 14]. Functional leadership theory highlights that team performance relies on collective behaviors rather than individual actions, emphasizing the impact of leadership style on productivity [7, 15]. Situational leaders, who adapt their style to different circumstances, demonstrate the need for flexibility and situational awareness in leadership effectiveness [7, 16]. Contingency theory suggests that leadership style determines team performance by optimizing work effort, controlling group relations, and managing work processes [7, 17]. Furthermore, Leaders advocating competition and urgency can motivate teams to excel, whereas autocratic styles that exclude team involvement can lower performance and innovation [17, 18]. Adapting leadership styles based on followers' readiness, fostering open communication, and embracing change are crucial for achieving effective team performance and organizational goals [7, 8].

2.1.3. How Can Leadership Foster a Culture of Innovation Within an Organization?

Developing an innovative culture within an organization relies on leadership that fosters growth and creativity by setting challenging goals and inspiring employees to exceed their limits [6]. Leadership plays a critical role in promoting an environment conducive to creativity and forward-thinking [2]. Leaders who engage in both individual and team initiatives and actively participate in overcoming challenges enhance organizational innovation [2, 19]. By taking risks and challenging the status quo, leaders can cultivate a culture of continuous improvement [6]. Effective leadership focuses on team achievements and collective learning, emphasizing innovation as key to organizational advancement [6, 20, 21]. Passionate and knowledge-seeking leaders drive creativity and vigor, fostering an innovative culture that permeates the organization [12]. Innovation, a major component of effective leadership, nurtures a positive organizational culture and strengthens trust between leaders and team members, enhancing collective potential [12, 22].

2.1.4. Psychological Safety

2.1.4.1. What is Psychological Safety in a Work Environment?

Psychological safety protects individuals emotionally within the workplace, enabling them to express thoughts and creativity without fear of negative consequences. This environment fosters innovation by encouraging the free flow of information, reducing stress and anxiety, and enhancing overall wellness [4, 23]. Psychological safety involves allowing employees to voice their opinions and challenge the status quo without repercussions [4, 24]. It is crucial for a healthy work environment where employees can seek help, admit mistakes, and use their abilities without fear of backlash, thus promoting innovation and problem-solving [25].

2.1.4.2. How Does Psychological Safety Contribute to Employee Well-Being?

Psychological safety is fundamental to organizational culture and employee well-being. It encourages open communication and trust, enabling employees to share thoughts and mistakes without fear of repercussions, thus fostering an atmosphere of collaboration [26]. On the flip side, a lack of psychological safety can negatively impact employee well-being,

leading to stress, anxiety, and reduced professional development [27]. Also, high psychological safety enhances motivation, engagement, and job satisfaction [28, 29]. It also fosters innovation and collaboration by allowing team members to express ideas freely and take risks without fear of criticism[30, 31]. Consistent psychological safety is essential for nurturing employee wellness, open communication, and innovation within the workplace [31].

2.1.4.3. What are the Strategies for Promoting Psychological Safety in Teams?
Creating psychological safety in teams is crucial for leveraging diversity, fostering open dialogues, and encouraging respectful interactions [32]. It mediates the benefits of team diversity, emphasizing its importance for team success [33]. In addition, psychological safety plays a significant role in moderating the relationship between team diversity, innovation, and performance[33, 34]. Fostering a supportive and inclusive team environment is essential for psychological safety at all organizational levels [4]. Amy Edmondson identifies three key behaviors to develop psychological safety: inclusive leadership, constructive feedback, and open communication [3]. Managers and supervisors must provide constructive feedback and discuss performance without instilling fear [35]. The goal is to create a space where each team member feels supported and valued, aiming for "good enough" psychological safety rather than perfection [36]. Psychological safety is central to achieving high performance, particularly in software delivery teams, and contributes to overall organizational effectiveness [28, 37].

2.1.5. Innovation
2.1.5.1. What are the Different Types of Innovation?
Innovation is multifaceted, encompassing continuous and discontinuous types, each offering unique benefits to organizations. It includes revolutionary technological developments, novel problem-solving techniques, new organizational practices, and business models distinct from traditional methods. Organizations must consider various types of innovation based on their objectives and industry dynamics, often engaging in multiple types simultaneously to achieve breakthrough outcomes [38]. Managers must be empowered to make timely decisions that support innovation, and maverick individuals can drive creativity by circumventing bureaucratic hurdles [39].

Moreover, organizations often engage in multiple types of innovation simultaneously, combining challenging the status quo, creative thinking, and risk-taking to achieve breakthrough outcomes [40]. Effective leadership is crucial for fostering a culture of innovation, managing bureaucracy, and nurturing creativity within organizations [41, 42]. Overall, effective leadership is essential for cultivating a culture of innovation within a business, where bureaucracy is managed to allow for flexibility and the exploration of new ideas and concepts [6]. Leadership, therefore, holds the key to not only motivating teams and improving performance but also to creating an environment that nurtures creativity and drives innovation forward [40]. This bibliometric analysis and network visualization, on the other hand, was carried out to explore the literature on cognitive aging in the Scopus database. It aimed to answer the following research questions:

a) What are the main research themes and subtopics within the literature on the relationship between leadership, psychological safety, and innovation, and how have they changed over time?
b) How do different types of leadership (e.g., transformational, ethical, servant) influence the relationship between psychological safety and innovation, and what are the most frequently studied leadership styles in this context?
c) Based on bibliometric analysis, what are the potential future directions and research gaps in the study of the relationship between leadership, psychological safety, and innovation?

3. Method
3.1. How is the Data Collected for SCOPUS Analysis?
The data collection process for this bibliometric study adhered to the PRISMA method, ensuring transparency and reproducibility in systematic reviews and bibliometric analyses [43-45]. The primary data source was the Scopus database, known for its comprehensive coverage of peer-reviewed literature across various disciplines [46-48].

An advanced query search using terms like "leadership," "psychological safety," and "innovation" was conducted, and filters were applied to include only articles, conference papers, book chapters, and publications in English, focusing on the 2010-2024 timeframe [49-52].

Initially, 48 records were retrieved from the Scopus database. These records were screened based on specific scope and eligibility criteria, ensuring relevance to the study's topic [53-56].

The final dataset of 48 records was deemed sufficient for an extensive bibliometric analysis, enabling the identification of regularities and trends in the research landscape [57, 58]. Following PRISMA guidelines and a systematic approach, the study ensured the reliability and validity of the bibliometric analysis, aiding in understanding the future trajectories of research in transformational leadership and innovation [59, 60].
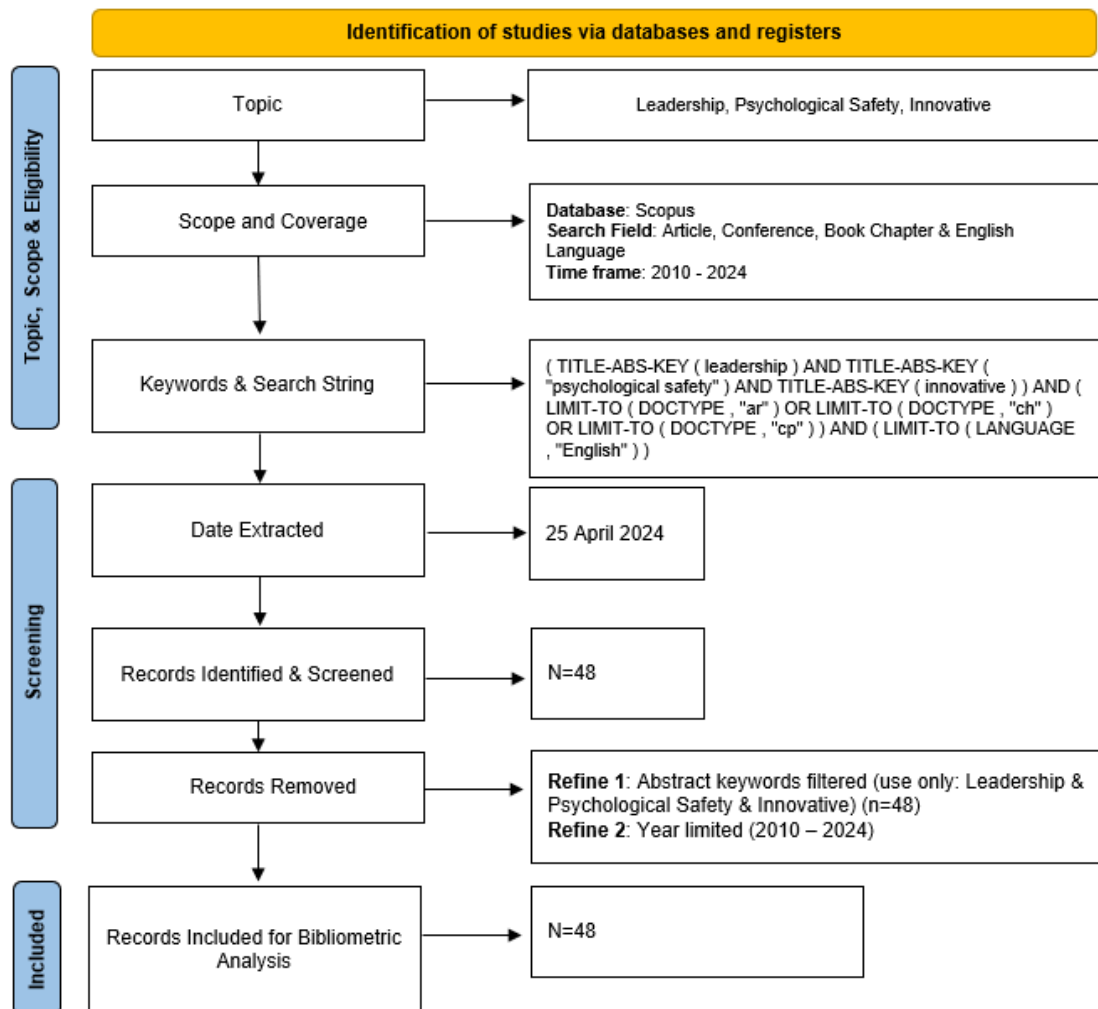
Figure 1.
PRISMA flow chart of data inclusion and exclusion.

3.2. How Can Bibliometric Analysis Help Understand Trends in Leadership, Psychological Safety and Innovation Research?
Bibliometric analysis reveals key trends and growth in leadership, psychological safety, and innovation research by studying bibliographic data such as citation counts, co-citation networks, and keyword occurrences. It identifies major publications, authors, and journals, providing insights into influential studies and research dissemination patterns [56, 57, 60]. This analysis tracks the development of research themes over time, highlighting emerging topics and interrelated concepts, aiding in understanding research priorities and gaps [52, 57, 59].
Moreover, bibliometric analysis detects collaboration patterns and knowledge exchange between scientists, universities, and countries, uncovering pivotal partnerships and geographic locations essential for advancing these research fields [58, 61, 62].
This knowledge helps form new partnerships, find potential collaborators, and establish international research initiatives. Overall, bibliometric analysis is a valuable tool for understanding the dynamics and evolution of research in leadership, psychological safety, and innovation, guiding scholars in identifying influential publications, evolving research themes, and collaboration opportunities [56, 60].

4. Results and Discussion

4.1. Overview of the Bibliometric Dataset

4.1.1. Number of Publications and Citations Based on Country
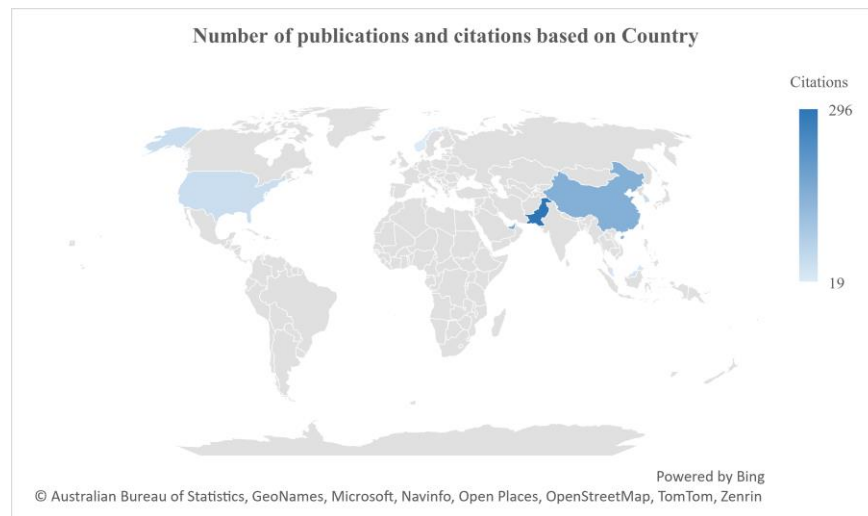

Figure 2.
Number of publications and citations based on country.

The analysis reveals that Pakistan leads with 6 documents and 296 citations, followed by the UAE (2 documents, 181 citations), Trinidad and Tobago (1 document, 181 citations), China (14 documents, 161 citations), and South Korea (5 documents, 50 citations). Despite having the highest number of documents (10), the United States has a relatively low citation count of 49. Malaysia, Israel, and Norway each have two documents with citations ranging from 35 to 19, and Cyprus has one document with 19 citations.

Pakistan's high citation count indicates a significant global impact, likely due to addressing specific local leadership issues. The substantial citations from the UAE and Trinidad and Tobago suggest focused research on unique cultural and economic leadership dynamics. China's large volume of research reflects its growing interest and impact in leadership studies, relevant to its rapid economic expansion. The lower citation count in the U.S. suggests a mature and saturated field. The inclusion of diverse countries like South Korea, Malaysia, Israel, Norway, and Cyprus highlights the global and varied nature of leadership research.

In order to ensure that the development of leadership research is extensive on a global scale, it will be vital to identify the nations that are spearheading this agenda and producing work that has the most influence. Comparisons between different cultures can also expose us to new findings, while collaborations can help in understanding practices common in all contexts, yet still appreciating the practices specific to some contexts.

4.2. Distribution of Publications by Document Type

Table 1.
Publications by document type

No	Document Type	Total Document
1	Article	39
2	Book Chapter	5
3	Conference	4

This study shows that journal articles dominate the research domain, accounting for 81.25% (39 out of 48) of the publications. Book chapters and conference proceedings constitute 10.42% (5 out of 48) and 8.33% (4 out of 48), respectively. The preference for journal articles is attributed to their prestige and rigorous peer-review standards, ensuring quality and credibility. These articles often focus on empirical data, quantitative analyses, and theory-driven approaches, fitting well within journal structures.

Despite their lower representation, book chapters provide in-depth discussions on specific aspects of leadership, innovation, and psychological safety. They allow researchers to explore theoretical frameworks, case studies, and interdisciplinary perspectives in detail. Conference proceedings are crucial for presenting cutting-edge research, fostering discussions, and facilitating collaborations.

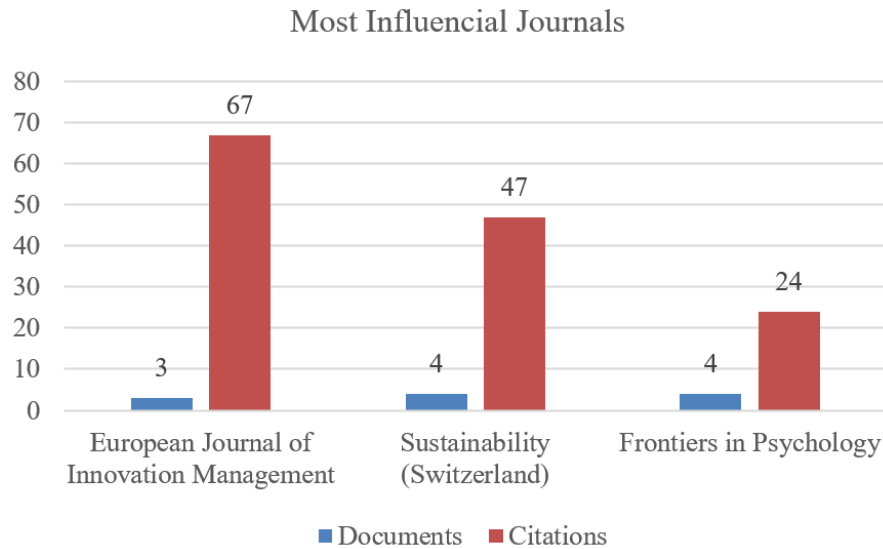*4.3. Most Influential Journals and Their Characteristics*

Figure 3.
Most influential journals.

Data demonstrates that The European Journal of Innovation Management published 3 papers with 67 citations, Sustainability (Switzerland) published 4 documents with 47 citations, and Frontiers in Psychology published 4 documents with 24 citations.

The high citation count of the European Journal of Innovation Management indicates the high quality and impact of its leadership research, especially in innovation management [6]. Sustainability's performance highlights the importance of leadership in sustainable business practices and ESG objectives [63]. Frontiers in Psychology emphasizes the role of psychological studies in evidence-based leadership techniques, focusing on cognitive, emotional, and behavioral processes [64]. The leadership articles from the journal have a significant impact, even though they are less in number compared to the other two sources. While references indicate reach, the number of publications does not always correlate with research quality or practical implications. The contributions of these journals enhance the study and practice of leadership from different disciplinary perspectives

4.4. Main Research Themes
4.4.1. Identification of Main Research Themes Using Keyword Co-Occurrence Analysis

This research examines the relationships between leadership, psychological safety, and innovation using data from Scopus as referenced in the PRISMA guidelines. VOSviewer visualizes the co-occurrence network, with "co-occurrence" as the analysis type, "author keywords" as the unit of analysis, and "full counting" as the method. Keywords appearing at least twice out of 145 were filtered down to 17, and then further cleansed to 11 to remove duplicates. The total strength of co-occurrence links was calculated, highlighting the most significant keywords.
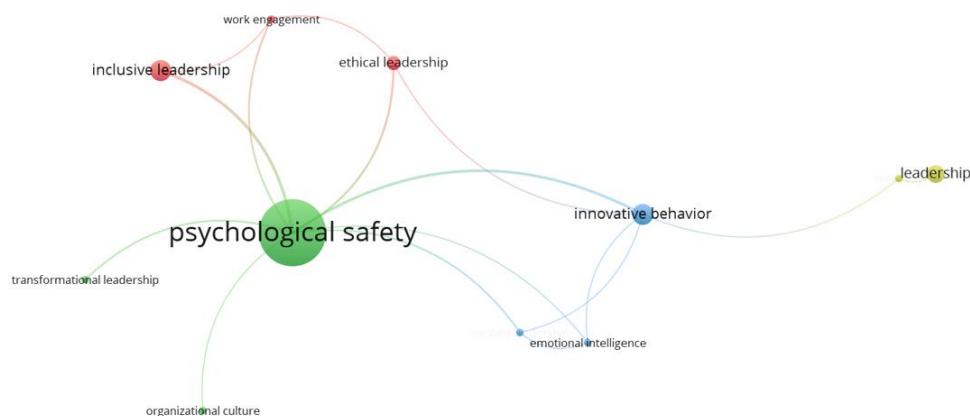
Figure 4.
Research Theme Visualization.

Based on the visualization, there are four clusters that are closely interconnected, which represent research themes or sub-topics. The keyword clusters reveal four main research themes in the literature on transformational leadership and innovation. The first theme focuses on the relationship between transformational leadership and work engagement, suggesting that transformational leaders who demonstrate ethical and inclusive behaviors are more effective in engaging their

employees. The second theme explores how transformational leadership interacts with organizational culture to create an environment conducive to innovation, with a particular emphasis on psychological safety. The third theme examines the direct impact of transformational leadership on employees' innovative behavior, highlighting the role of leaders' emotional intelligence in stimulating innovation. The fourth theme finally looks at the relationship between transformational leadership and employee creativity, which is a significant aspect of innovation; it also looks into the possible synergistic impacts of servant leadership. The implications of these themes, in general, highlight the varied impact of transformational leadership on innovation within organizations.
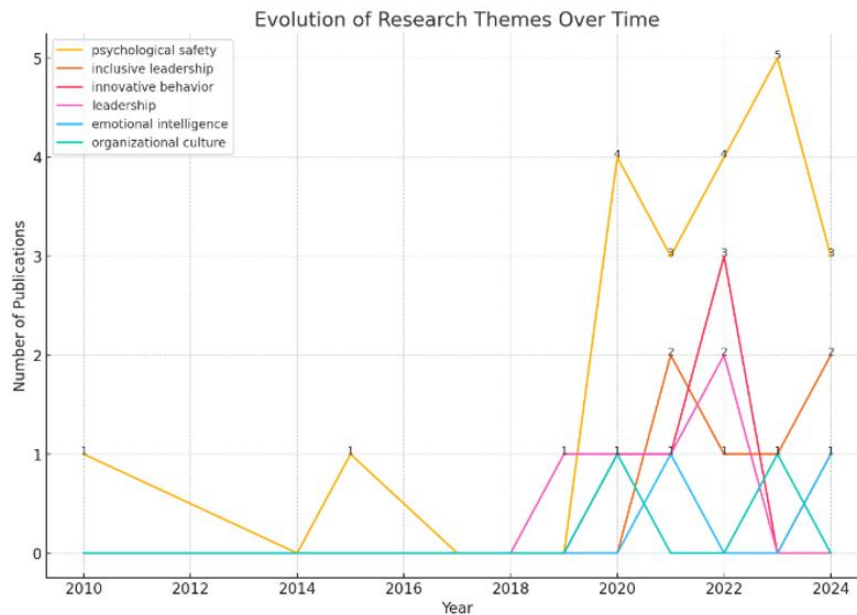
4.4.2. Evolution of Research Themes Over Time

Figure 5.
Evolution of Research Themes Over Time.

The analysis details changes in research areas on leadership styles, psychological safety, and innovation over time. Notable peaks in publications on psychological safety occurred in 2020 and 2022, indicating a growing interest. The trend for inclusive leadership also shows growth, with peaks in 2020 and 2022, highlighting a shift towards inclusive leadership approaches. Innovation research varies yearly but remains vibrant, with peaks such as in 2020. Leadership research remains consistent, reflecting its importance in organizational studies. Emerging trends include emotional intelligence, which has gained attention in recent years, notably in 2022, and organizational culture, which, despite low attention, shows potential for future research.

The visual representation illustrates a growing curiosity towards three core concepts: psychological safety, inclusive leadership, and innovation behavior, while other emerging themes such as emotional intelligence and organizational culture, open doors for more in-depth investigations. The data is what the graph represents; it is about increasing interest in these areas, but emerging themes also present opportunities for further exploration. These trends reflect the evolving understanding of the complex interplay between leadership styles, workplace environment, and innovation, guiding future research to enhance organizational performance and employee well-being.

4.5. Influence of Leadership Styles on Psychological Safety and Innovation
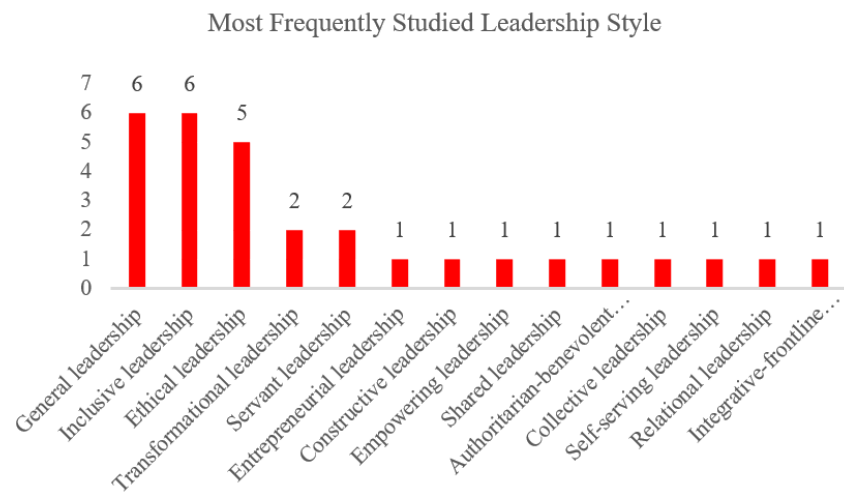*4.5.1. Most Frequently Studied Leadership Styles*

Figure 6.
Most frequently studied leadership styles.

The data reveals the most frequently studied leadership styles, with "General leadership" and "Inclusive leadership" both having 6 documents each. "Ethical leadership" follows with 5 documents, while "Transformational leadership" has 2 documents. Other styles such as servant, entrepreneurial, constructive, empowering, shared, authoritarian-benevolent, collective, self-serving, relational, and integrative-frontline leadership, appear in 1 document each.

The high number of publications discussing leadership in general suggests a broad interest in overarching leadership principles, theories, and practices. Recent interest has shifted towards inclusive and ethical leadership, reflecting growing attention to diversity, equity, and ethical behavior in the workplace. Inclusive leadership fosters a work environment where all team members feel valued, enhancing engagement, innovation, and performance [65]. Ethical leadership, which emphasizes integrity and moral standards, helps establish trustful climates that enhance psychological safety and promote prosocial behavior [66].

Transformational leadership, although less frequently studied recently, remains significant for its ability to inspire and motivate through charisma, individualized consideration, intellectual stimulation, and inspirational communication [67]. The emergence of other leadership styles, such as servant and entrepreneurial leadership, underscores the field's diversity and the continuous exploration of new approaches.

The smaller publication counts on some alternative leadership styles indicate their specialized nature compared to the dominant paradigms of inclusive, ethical, and transformational leadership. Further research is needed to validate these novel constructs and their effects in different environments.

In conclusion, this analysis of leadership literature uncovers major patterns and concerns within the discipline. There is a strong interest in developing general principles, though there is also a considerable amount of work that explores specific aspects of leadership, such as being inclusive and ethical. The variety of styles that are studied underscores the diversity within this field yet studying them all can lead us closer towards an understanding grounded in evidence-based practice. Leadership is like an ocean with different waves; riding them can help us reach the shore of effective leadership development.

4.5.2. Impact of Leadership Styles on the Relationship Between Psychological Safety and Innovation
Leadership styles significantly influence the relationship between psychological safety and innovation within organizations. Inclusive, ethical, and transformational leadership styles promote a psychologically safe environment, fostering employee innovation. In contrast, abusive supervision and self-serving leadership hinder psychological safety and innovation. Factors such as innovation rewards and openness to experience can moderate this relationship, enhancing the positive effects of psychological safety on innovation.

Table 2.
Leadership style impact to psychological safety and innovation

Leadership Style	Impact on Psychological Safety and Innovation	Reference
Inclusive Leadership	Positively influences psychological safety, which enhances employee innovation	Javed, et al. [68]
Inclusive Leadership	Positively influences psychological safety, which enhances employee innovation	
Ethical Leadership	Creates a psychologically safe environment that encourages employee innovation	Wang, et al. [19]
Transformational Leadership	Fosters psychological safety and promotes innovation among employees	
Abusive Supervision	Negatively affects psychological safety and hinders employee innovation	Ahmad, et al. [69]
Self-serving Leadership	Creates an environment lacking in psychological safety, which can impede employee innovation	Liu, et al. [70]

Table 3.
Moderating factor between Psychological Safety and Innovation.

Moderating Factor	Impact on Psychological Safety and Innovation	Reference
Innovation Rewards	Positively moderates the relationship between psychological safety and employee innovation	Wang, et al. [71]
Openness to Experience	Moderates the relationship between work engagement (influenced by psychological safety) and employee innovation	Liu, et al. [63]

5. Future Research Directions and Gaps

5.1. Synthesis Of Main Findings from the Bibliometric Analysis

The bibliometric analysis highlights significant trends in leadership styles, psychological safety, and innovation. Psychological safety and inclusive leadership have become increasingly prominent topics, with notable publication peaks in 2020 and 2022, indicating their growing importance in fostering innovation and employee wellness. Interest in innovative behavior remains consistent, with fluctuations suggesting ongoing investigations into innovation drivers. Emerging trends such as emotional intelligence and organizational culture are now recognized as crucial for effective leadership and innovation. These patterns depict the changing perception of the intricate dynamics that leadership styles and workplace innovation is calling to further future research that can improve the performance of organizations and the wellness of employees.

5.2. Identification of Research Gaps, Underexplored Research Themes and Sub-Topics

The analysis highlights several unexplored themes and subtopics within the nexus of leadership styles, psychological safety, and innovation. Notable research gaps include the relationship between leadership and promoting voice behavior, and the effect of leaders' emotional intelligence on innovation. The dynamic relationship between organizational culture and leadership paradigms, and how this synergy influences innovation, also requires further scrutiny. Additional underexplored areas include creative self-efficacy, healthcare innovation, and comprehensive workplace health encompassing both physical and psychological safety. Closing these gaps could provide us with profound insights on various leadership approaches that can foster a safe and innovative workplace.

Table 4.
Research gaps and Underexplored themes.

Underexplored Themes	Potential Research Areas	Research Gaps
Voice Behavior	Exploring how leadership styles influence employees' willingness to speak up and contribute ideas	Limited studies on the connection between voice behavior and innovation under different leadership styles
Emotional Intelligence	Investigating the role of leaders' emotional intelligence in fostering psychological safety and promoting innovation	Insufficient research on how emotional intelligence interacts with leadership styles to impact innovation
Organizational Culture	Examining the interplay between organizational culture, leadership styles, and innovation	Few studies address how cultural factors within organizations moderate the relationship between leadership and innovation
Creative Self-Efficacy	Studying the impact of leadership on employees' belief in their creative abilities and its effect on innovation	Limited exploration of self-efficacy as a mediator between leadership and innovative outcomes
Health Care Delivery	Investigating leadership styles that enhance innovation in healthcare settings, focusing on patient safety and quality of care	Few studies explore innovative leadership practices in healthcare and their effects on psychological safety and patient outcomes
Workplace Health and Safety	Exploring how leadership styles affect workplace health and overall psychological safety, particularly in high-stress environments	Limited research on the comprehensive impact of leadership on both physical and psychological aspects of workplace health

Future studies can offer significant knowledge on these unexplored themes and their impact on enhancing organizational performance plus nurturing innovation, which are practical to any sector.

6. Potential Future Research Directions

6.1. Emerging Trends and Novel Research Questions

The bibliometric analysis of papers on leadership styles, psychological safety, and innovation reveals significant growth in recent years, with 46 studies published between 2014 and 2024. This indicates increasing academic and professional interest in how leadership styles foster innovation by creating a psychologically safe environment. The peak years for publications are 2022, 2020, and 2023, reflecting heightened research activity and possibly novel discoveries in these fields.

The emergence of an increasing number of studies that emphasize the importance of adopting leadership styles which can best be described as inclusive and empowering paints a clear picture that a new dawn is upon us. This will involve shifting from the typical leadership styles to those that focus on the well-being and engagement of employees as the primary determinants of innovation. The significance of this pattern highlights the fluidic growth and vital essence of research in leadership towards successful organizational performance through innovation. By analyzing these patterns, researchers can locate spaces in the work of literature and chances for investigations to explore into the intricate relations of leadership with psychological safety and innovation thereby ensuring a more comprehensive study that would lead them to an advanced level.

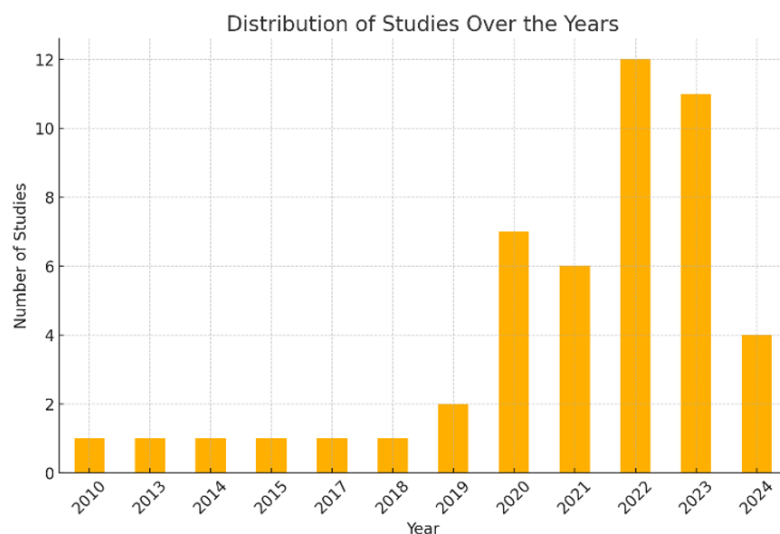**Figure 7.**
Trend Analysis.

Apart from that, the synthesis of the CSV dataset and the VOSviewer map highlights the evolving research landscape in leadership styles, psychological safety, and innovation Figure 8. Inclusive leadership and psychological safety emerge as key themes with significant recent interest, indicating promising areas for future research. By exploring these themes in greater

depth and encouraging cross-disciplinary collaborations, researchers can contribute to creating more innovative and psychologically safe work environments, ultimately enhancing organizational performance and employee well-being.
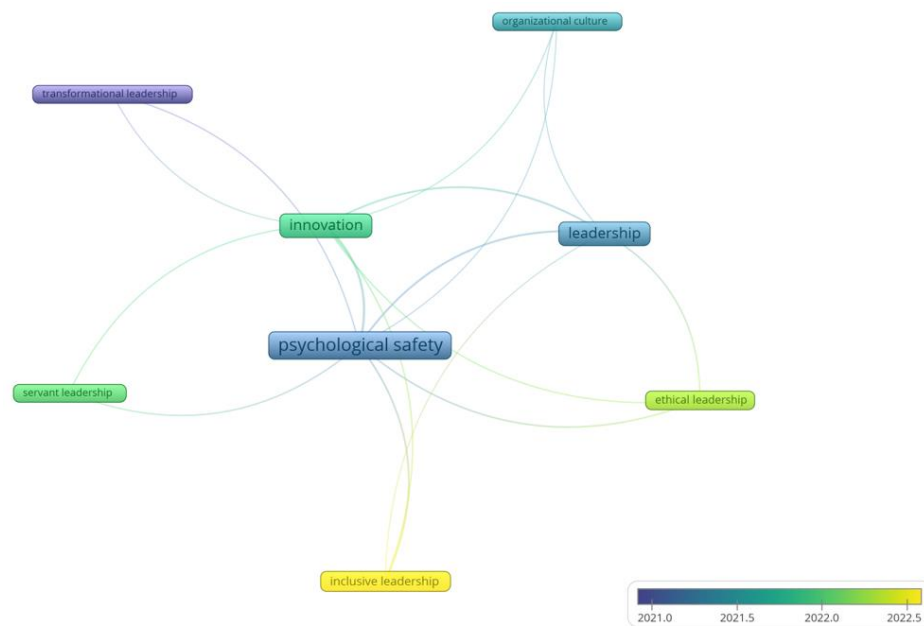

Figure 8.
Potential Future Research Direction.

6.2. Interdisciplinary Collaboration Opportunities

Based on the analysis of the dataset, there are several promising opportunities for interdisciplinary collaboration. The most frequently mentioned keywords indicate core areas of research focus, suggesting potential intersections for collaborative efforts. For instance, psychological safety, which appears 32 times, intersects with fields like psychology, organizational behavior, and human resources. This offers potential for joint studies between psychology departments and business schools to explore the impact of psychological safety on workplace innovation. Similarly, leadership, with 21 mentions, spans business administration, management, and leadership studies, paving the way for collaborations between leadership experts and organizational psychologists. Interdisciplinary research offers potential pathways involving diversity and inclusion, as well as sociology and innovation management. In addition to healthcare administration, this includes health care delivery and innovative behavior, as well as inclusive leadership.

Geographically, institutions like Renmin University of China and the University of Nebraska can collaborate on cross-cultural impacts, while the University of Sharjah in UAE can investigate leadership styles within Middle Eastern cultural contexts. The forthcoming table encapsulates these promising possibilities for interdisciplinary and international cooperation:

Table 5.
Potential interdisciplinary and international collaboration opportunities.

Keyword	Fields Involved	Potential Collaborations
Psychological Safety	Psychology, Organizational Behavior, HR	Joint studies between psychology and business schools
Leadership	Business Administration, Management	Collaborations between leadership experts and organizational psychologists
Inclusive Leadership	Diversity and Inclusion, Sociology, Management	Studies between sociology and business departments
Innovative Behavior	Innovation Management, Psychology, Engineering	Research between engineering and business schools
Health Care Delivery	Healthcare Administration, Public Health, Psychology	Cross-disciplinary studies to improve patient safety and innovation
Health Care Personnel	Healthcare Administration, Public Health, Psychology	Cross-disciplinary studies to improve patient safety and innovation

These interdisciplinary and international collaborations enable researchers to gain comprehensive insights into the complex interplay of leadership styles, psychological safety, and innovation. This coordination increases the possibilities of research work: it does not only help a broader scope of research but also helps in understanding more deeply how different fields can be able to come together to address important issues that face organizations.

3) Practical implications and applications

The analysis identifies several practical implications and applications for organizations and leaders. Promoting inclusive leadership through training and inclusion workshops can enhance psychological safety and innovation. Open communication, a supportive feedback culture, and encouraging risk-taking are crucial for fostering innovation. Organizations should regularly measure and address psychological safety concerns.

Empowering leadership, which involves delegating authority and providing resources, can foster innovation. Emotional intelligence training for leaders can create a supportive and innovative work environment. An organizational culture that supports risk-taking and innovation can be developed by recognizing and rewarding innovation, learning from failures, and fostering collaboration.

In healthcare, leadership programs focusing on psychological safety and innovation in high-stress environments can improve patient safety and quality of care. Encouraging cross-disciplinary collaborations between departments such as psychology, business, and healthcare can enhance understanding and implementation of innovative leadership styles. Implementing these practices can create an environment that supports innovation and improves overall performance and employee well-being.

7. Conclusion

7.1. Recap of Main Research Themes and Their Evolution

In studying literature through bibliometrics on leadership styles, psychological safety, and innovation, several research themes stand out, helping us understand how these topics have developed over time. Major topics include the influence of inclusive leadership on psychological safety and employee innovation [19, 68, 72]. Ethical leadership contributes to fostering a psychologically secure environment where innovation thrives. Sarwar et al. [73], and the effects of transformational leadership in creating a conducive psychological environment that fosters creativity and innovation among employees [74].

The analysis also highlights how abusive supervision and self-serving leadership can have a detrimental effect on psychological safety and innovation [75, 76]. Innovation rewards and openness to experience are identified as moderating factors that influence the relationship between psychological safety and innovation [71, 75].

The evolution of research themes, with a focus on inclusive and ethical leadership styles, underscores the rising interest in psychological safety as a facilitator of innovation. The changing landscape indicates that more people are realizing the value of making a workplace supportive and inclusive, not only for innovation but also for the well-being of employees. This growing focus on psychological safety to drive innovation has been increasing over time, alongside attention to inclusive and ethical leadership.

7.2. Implications of Leadership Styles on Psychological Safety and Innovation

Leadership styles significantly impact psychological safety and innovation in organizations. This is the key takeaway from the bibliometric analysis. Inclusive leadership where all team members feel appreciated and able to contribute boosts psychological safety and increases innovation within the organization [19, 68]. Similarly, ethical leadership, marked by integrity and moral principles, fosters a psychologically secure work environment that cultivates employee innovation [73]. Transformational leadership inspires and motivates followers, fostering psychological safety and encouraging creativity within employees [74]. Conversely, abusive supervision and self-serving leadership styles negatively impact psychological safety and hinder innovation [75, 76].

Organizations should embrace leadership styles that prioritize inclusivity, ethics, and employee well-being. Such styles foster a psychologically safe environment where innovation thrives. Leaders should develop skills and behaviors associated with inclusive, ethical, and transformational leadership to foster a culture of innovation and employee engagement [3, 77, 78].

7.3. Future Research Agenda and Recommendations for Advancing the Field

Based on the identified research gaps and underexplored themes, several recommendations can be made for advancing the field of leadership, psychological safety, and innovation:

1. Investigate the role of leadership styles in fostering voice behavior and its impact on innovation [75].
2. Explore the interplay between leaders' emotional intelligence, leadership styles, and their influence on psychological safety and innovation [79].
3. Examine the moderating effects of organizational culture on the relationship between leadership styles and innovation [73].
4. Study the mediating role of creative self-efficacy in the relationship between leadership and innovative outcomes [80].
5. Investigate the impact of leadership styles on psychological safety and innovation in healthcare, focusing on patient safety and quality of care [33].
6. Explore the impact of leadership on both physical and psychological aspects of workplace health and safety [81].
7. Conduct cross-cultural studies to understand the influence of cultural factors on the effectiveness of leadership styles in fostering psychological safety and innovation [82].
1. Develop and test interventions aimed at training leaders in inclusive, ethical, and transformational leadership behaviors to enhance psychological safety and innovation within organizations [3, 77, 78].

By addressing these research gaps and exploring new avenues, future studies can contribute to a more comprehensive understanding of the complex dynamics between leadership styles, psychological safety, and innovation. This

knowledge can inform evidence-based practices and interventions to help organizations create work environments that foster employee well-being, creativity, and innovation.

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