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Psychological Challenges in Nurse Managers: A Bibliometric Analysis of Anxiety and Burnout Literature

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Abstract

Anxiety and burnout among nurse managers have implications extending beyond individual well-being to care quality, workforce retention, and organizational performance. We conducted a bibliometric analysis of 847 English-language articles retrieved from the Web of Science Core Collection on 25 March 2026. Search terms combined nurse leadership descriptors ("nurse manager*," "head nurse*," "nursing leader*") with indicators of psychosocial risk ("burnout," "stress," "anxiety"), and records were filtered by research area (nursing, management, health policy and services), document type (article), and language (English). Data were processed through R and the Biblioshiny interface; both descriptive and evaluative bibliometric indicators were reported. Across the 1980–2026 search period, the 847 retrieved articles involved 3,439 authors and showed an estimated annual publication growth rate of 6.21%. Laschinger, Labrague, Van Bogaert, Warshawsky, and Cummings were the most prolific authors. Journal of Nursing Management led the publication output with 178 articles. Among institutions, the University of Western Ontario stood at the top with 41 publications. Keyword analysis identified burnout, stress, nurses, care, and impact as the most frequently occurring terms. Thematic mapping positioned impact, job satisfaction, and outcomes as motor themes, while incivility, bullying, and palliative care occupied the niche quadrant. Publication output increased substantially after 2019, overlapping temporally with the COVID-19 pandemic period. Anxiety was less prominent than burnout and stress in the mapped keywords; future studies should investigate anxiety as a distinct construct alongside burnout, leadership practices, and organizational outcomes within integrated empirical designs.

Keywords: Nurse managers; Nursing leadership; Burnout; Anxiety; Occupational stress; Bibliometric analysis

1. INTRODUCTION

The sustainability of healthcare services depends not only on appropriate technological infrastructure and adequate institutional resources but also on the competence, working conditions, and psychological well-being of the professionals who deliver care. Nurses maintain continuity in clinical processes, contribute to decisions at the bedside, and provide an essential foundation for the effective functioning of contemporary health systems [1–3]. At the same time, the professional demands placed on nurses have become increasingly complex. Extended working hours, greater patient acuity, emotional labour, and expanding administrative expectations create conditions in which psychosocial strain can accumulate; burnout, occupational stress, and anxiety are among the important outcomes documented in this workforce [4–6]. Persistent staffing shortages and heavier care demands have further increased concern about the psychological burden experienced by nursing personnel. These challenges affect not only individual professionals but also the healthcare institutions that rely on them to sustain safe, effective, and continuous care [7, 8].

Burnout, as originally operationalized by Maslach and Jackson [9], includes three interrelated dimensions: emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. Work environments characterized by uncertainty, time pressure, substantial responsibility, and repeated exposure to difficult clinical decisions have been associated with burnout in healthcare professionals and nursing managers [6, 10, 11]. Anxiety is related to, but conceptually distinct from, occupational burnout. Whereas burnout is generally associated with prolonged exposure to work-related stressors, anxiety can involve heightened apprehension and perceived threat during clinical and managerial decision-making. Research on anxiety and decision-making suggests that anxiety may affect information processing, judgment, and performance under pressure [12, 13]. When anxiety and burnout co-occur, their combined associations with professional well-being and clinical functioning warrant particular attention, although the present bibliometric design cannot estimate their cumulative clinical effects.

Nurse managers occupy a particularly demanding position within these organizational conditions. Alongside clinical oversight, they coordinate staffing and human resources, influence the culture of their units, maintain care standards, and implement institutional policies [14]. Nursing leadership has also been associated with measurable differences in patient and organizational outcomes [15]. Nurse managers must respond simultaneously to expectations from senior administration and the day-to-day needs of frontline teams, potentially encountering pressures that differ from those experienced by staff nurses. Role conflict, role ambiguity, insufficient staffing, and constraints on available resources may intensify their occupational stress and vulnerability to burnout [16–18]. A systematic review and meta-analysis of nursing managers has identified substantial emotional exhaustion and depersonalization, while also highlighting workload, personnel conflicts, and inadequate managerial support as relevant factors [11]. These findings suggest that managerial responsibility merits direct examination rather than being treated as interchangeable with the broader nursing workforce.

The consequences of psychological strain at the managerial level may extend beyond the individual nurse manager. Burnout and dissatisfaction can compromise continuity of leadership, increase intentions to leave managerial positions, and undermine efforts to establish supportive working environments [19, 20]. Anxiety and acute stress may also interfere with judgment and professional performance in time-sensitive settings, although direct causal links between nurse-manager anxiety and specific clinical errors require appropriately designed empirical studies [21]. Accordingly, anxiety and burnout among nurse managers are not solely matters of individual occupational health. They are also relevant to workforce stability, communication, managerial effectiveness, and the conditions under which safe healthcare services can be maintained [5, 19]. Distinguishing documented organizational associations from untested causal claims is essential when interpreting the research literature.

Although research concerning anxiety, stress, and burnout in nursing management has expanded, published work remains distributed across clinical, organizational, occupational-health, and leadership fields. Studies examine different populations and outcomes, and the relative prominence of anxiety within nurse-manager research remains uncertain. Bibliometric analysis provides a structured means of evaluating scientific production, identifying influential authors and publication outlets, examining conceptual relationships, and tracing changes in research attention over time [22]. A previously published bibliometric analysis by the present authors mapped the broader nurse-manager and nursing-management literature using 7,054 articles; the current study differs in its narrower focus on publications retrieved through psychosocial-risk terms relating to burnout, stress, and anxiety [23]. These different search populations should not be treated as independent evidence of the prevalence of mental-health conditions among nurse managers. By analyzing a defined collection of anxiety-, stress-, and burnout-related nursing-leadership publications, the present study aims to characterize the field's development, identify its leading contributors and outlets, and describe its thematic organization across more than four decades. The following four research questions therefore guide the analysis:

RQ1. Who are the leading authors, journals, and institutions in anxiety and burnout research among nurse managers, and how are corresponding-author contributions distributed across countries?

RQ2. How has annual scientific productivity in the field evolved between 1980 and 2026?

RQ3. What is the conceptual structure of the field as reflected in keyword frequency, temporal keyword trends, theme co-occurrence patterns, and thematic mapping?

RQ4. Which articles have received the highest global citation counts, and what thematic orientations do they represent?

2. METHOD

Literature on anxiety and burnout among nurse managers was retrieved from the Web of Science (WoS) Core Collection on 25 March 2026. WoS was selected as the sole data source because it offers standardized bibliographic metadata and citation information suitable for cross-disciplinary analysis [24, 25]. Its coverage and indexing decisions also differ from those of alternative databases, which should be considered when interpreting the results [26, 27]. Two concept blocks were combined with the Boolean AND operator to construct the search query: ("nurse manager*" OR "head nurse*" OR "nursing leader*") AND ("burnout" OR "stress" OR "anxiety"). The initial search returned 1,155 records. Successive filters were then applied in the following order: WoS Research Areas were restricted to nursing, management, and health policy and services, which reduced the set to 933 documents; limiting document type to "article" brought this to 851, and restricting the language to English produced a final sample of 847 articles. Figure 1 presents the selection process as a flow diagram.

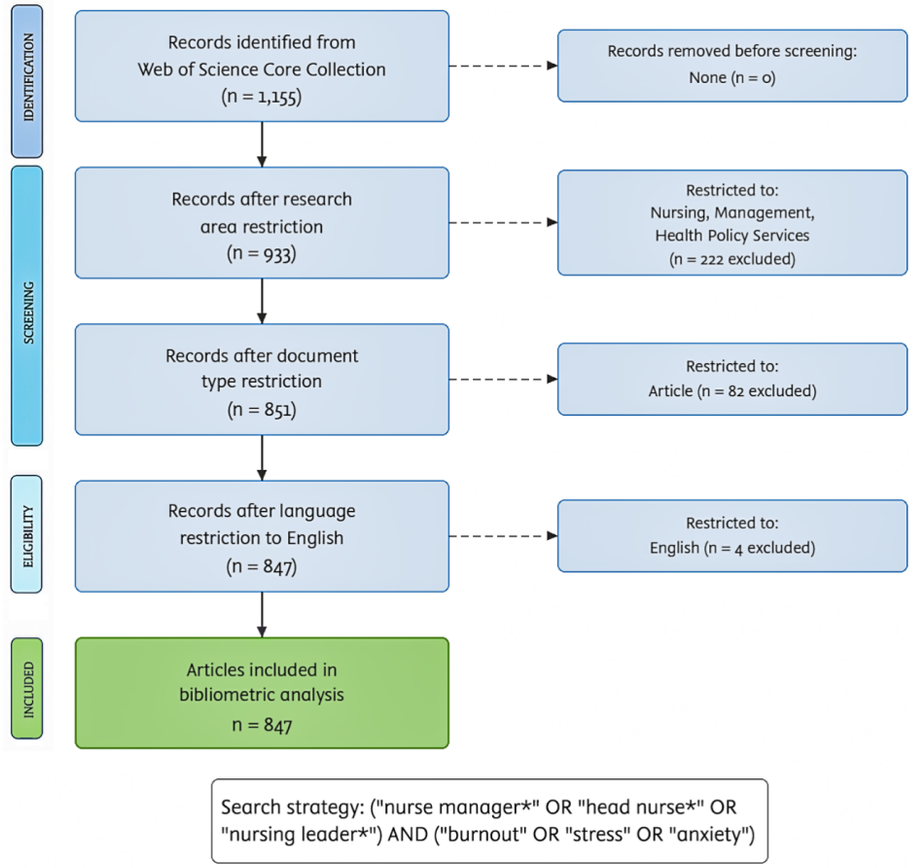


Figure 1. *Study Selection Flow Diagram. Records were retrieved from the WoS Core Collection on 25 March 2026 and filtered by research area, document type, and publication language.*

Both descriptive and relational bibliometric indicators were examined. Descriptive analyses characterized publication trends, authorship patterns, keyword usage, institutional productivity, and the geographical distribution of corresponding authors. Relational science-mapping techniques were used to examine connections among keywords and the thematic organization of the literature [28]. Network analysis permits researchers to identify influential actors and terms within a defined domain and to visualize relationships among them, although bibliographic co-occurrence should not be interpreted as evidence of clinical or causal associations [29]. Records exported from WoS were converted into an R data frame and analyzed using the bibliometrix R package [30] through the Biblioshiny interface (Version 4.2.0) [31]. The resulting outputs included keyword co-occurrence networks, thematic maps, temporal keyword-density visualizations, corresponding-author country distributions, and global citation rankings. The study visualizations were generated using the selected bibliographic records and the specified Biblioshiny procedures.

Since the study used bibliographic metadata retrieved from the Web of Science Core Collection and involved no human

participants, ethical approval was not required. No primary data collection, intervention, or interaction with individuals took place at any stage of the research process.

3. RESULTS

Table 1 summarizes the core bibliometric characteristics of the retrieved literature. From 1980 to the search date in 2026, 847 articles met the specified inclusion criteria. A total of 3,439 authors were represented across these articles, while 59 documents were single-authored. The estimated annual growth rate in publication output was 6.21%. The records contained 1,673 distinct keywords, and their combined bibliographies comprised 25,480 referenced entries. These indicators describe the selected WoS records rather than the entirety of nursing-leadership research published during the same period.

Table 1. *Core Bibliometric Indicators*

Indicator	Value
Timespan	1980–2026
Documents	847
Authors	3,439
Single-authored documents	59
Annual growth rate (%)	6.21
Keywords	1,673
References	25,480

Table 2 identifies the five most productive authors, journals, and institutions represented in the retrieved records. Laschinger ranked first among authors with nine publications, followed by Labrague, Van Bogaert, and Warshawsky, each with eight, and Cummings with seven. Among journals, *Journal of Nursing Management* contributed 178 articles, approximately three times the 59 articles published in the second-ranked *Journal of Nursing Administration*. *Journal of Advanced Nursing* accounted for 53 articles, followed by *BMC Nursing* with 49 and *Journal of Clinical Nursing* with 31. In institutional output, the University of Western Ontario ranked first with 41 publications. Central South University, Shandong University, and Sichuan University each contributed 29 publications, while Huazhong University of Science and Technology contributed 28. These totals reflect affiliations indexed within the selected records and do not measure the institutions' complete nursing-research output.

Table 2. *Top Five Authors, Journals, and Institutions*

Author	n	Journal	n	Institution	n
Laschinger, H. K. S.	9	Journal of Nursing Management	178	Univ. of Western Ontario	41
Labrague, L. J.	8	Journal of Nursing Administration	59	Central South Univ.	29
Van Bogaert, P.	8	Journal of Advanced Nursing	53	Shandong Univ.	29
Warshawsky, N. E.	8	BMC Nursing	49	Sichuan Univ.	29
Cummings, G. G.	7	Journal of Clinical Nursing	31	Huazhong Univ. of Sci. & Tech.	28

Figure 2 illustrates annual publication activity from 1980 to March 2026. The number of articles was relatively low between 1980 and the early 2000s, with annual counts generally remaining in single digits. From the mid-2000s onward, publication activity gradually increased, and annual totals began to enter double figures. A temporary decline was observed between 2016 and 2018, when reported output fell from approximately 48 to 25 articles. Publication activity subsequently increased, particularly after 2019, reaching the highest reported annual count of 88 articles in 2025. The apparent decrease in 2026 should not be interpreted as an annual decline because the search was conducted on 25 March 2026 and therefore represents only a partial publication year.

The author-keyword word cloud in Figure 3 provides a visual overview of terminology used in the 847 selected articles. Burnout was the most visually prominent keyword, followed by stress and nurses. Job satisfaction appeared in both hyphenated and unhyphenated forms, illustrating the effect of inconsistent keyword standardization. Other prominent expressions included care, health, leadership, nursing, impact, and job-satisfaction. Terms related to turnover, outcomes, work, quality, resilience, empowerment, COVID-19, and performance were also visible. Anxiety appeared but occupied substantially less visual space than burnout and stress. Because unmerged variants can divide the observed frequency of

conceptually similar terms, the word cloud should be interpreted as an exploratory representation of keyword usage rather than a definitive ranking of conceptual importance.

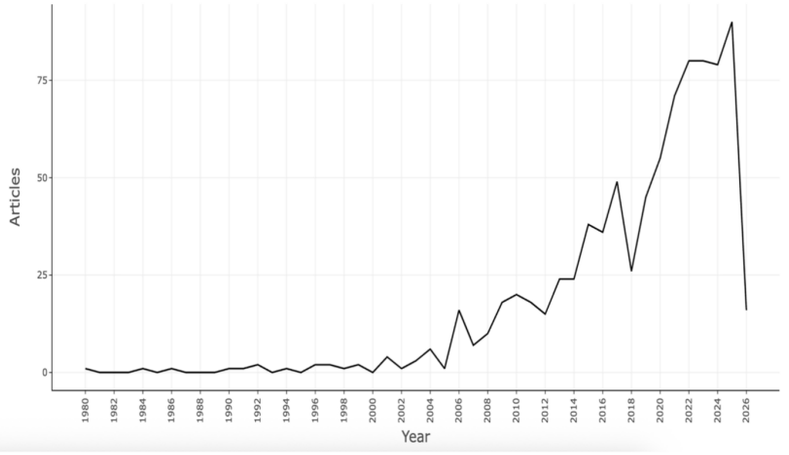


Figure 2. *Annual Scientific Productivity in Anxiety and Burnout Research Among Nurse Managers (1980–2026). The 2026 data point reflects a partial year, as the literature search was conducted on 25 March 2026.*

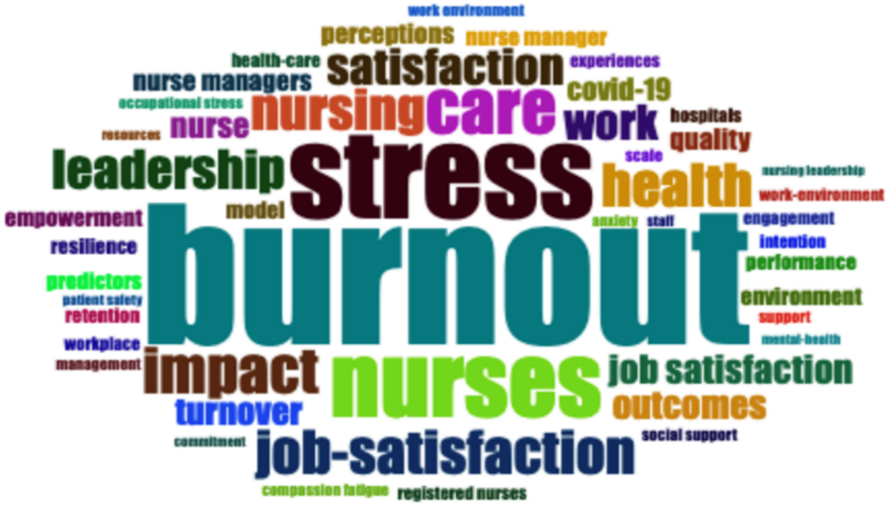


Figure 3. *Word Cloud of Author Keywords in Anxiety and Burnout Research Among Nurse Managers (n = 847 articles). Font size corresponds to keyword frequency. Hyphenated and unhyphenated variants of compound terms appear as separate entries.*

Figure 4 depicts the temporal distribution of keywords across publication years, with bubble size representing the reported intensity of usage. Survey, patient mortality, and job dissatisfaction reached their highest displayed density around 2010–2012. Empowerment, quality of care, teamwork, and nurse retention became more prominent around 2012–2014. Engagement, hospitals, staff, and model were concentrated around 2016–2018. Stress reached its highest density approximately in 2018–2019, while burnout, care, health, and job satisfaction were most prominent around 2019–2020. Nurses peaked around 2020–2021, and COVID-19 around 2021–2022. More recently, structural equation model, psychological safety, sleep quality, bullying, perceived stress, and compassion fatigue displayed peaks between 2023 and 2025. These positions describe patterns within the selected keyword visualization and do not, by themselves, demonstrate that the underlying research methods or clinical priorities changed causally.

The keyword co-occurrence network displayed three major clusters, as shown in Figure 5. A burnout-centred red cluster occupied the left side of the visualization, with burnout representing the largest node and nurses, stress, and care forming other prominent nodes. Impact, leadership, nursing, predictors, and health also appeared within this cluster. The strongest visible connections linked burnout with stress and with nurses. A green cluster in the lower-right portion of the network contained organizational and managerial outcomes, including job satisfaction, outcomes, work environment, nurse manager, and quality, together with turnover, retention, engagement, empowerment, hospitals, and patient safety. A blue cluster towards the upper-right area contained resilience, mental health, COVID-19, healthcare, fatigue, compassion fatigue, and anxiety. Within this latter cluster, anxiety appeared as a comparatively small, peripheral node. The visually

weaker connections between clusters suggest comparatively limited keyword co-occurrence across the represented themes, although network layout and threshold choices also influence the appearance of such relationships.

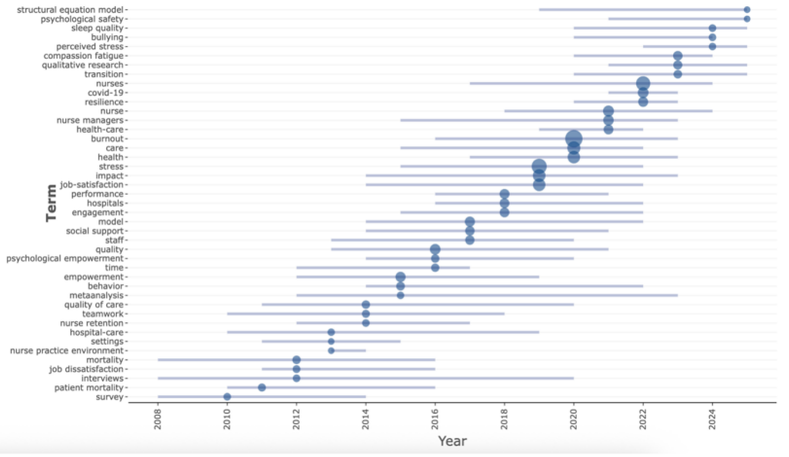


Figure 4. *Temporal Keyword Density in Anxiety and Burnout Research Among Nurse Managers. Bubble size indicates usage intensity for a given term in a given year. Terms are ordered vertically by the year of peak density, with the earliest-peaking terms at the bottom.*

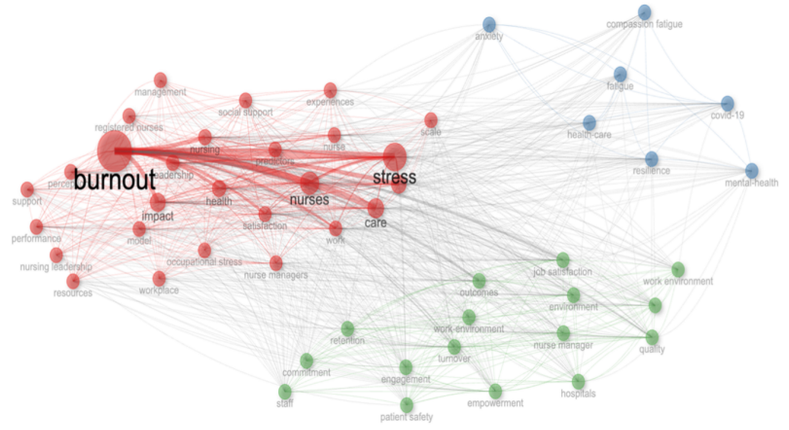


Figure 5. *Keyword Co-Occurrence Network in Anxiety and Burnout Research Among Nurse Managers. Node size corresponds to keyword frequency; edge thickness indicates co-occurrence strength. Three clusters are color-coded: red (burnout-centered), green (organizational outcomes), and blue (resilience and pandemic-related terms).*

Figure 6 presents the distribution of corresponding-author countries and differentiates single-country publications (SCP) from multiple-country publications (MCP). The United States accounted for approximately 240 documents, with most classified as SCP. China ranked second with approximately 120 documents, also with a substantial SCP component. Canada and Australia each contributed approximately 40–47 documents and displayed a visibly higher proportion of MCP than the two leading countries. Korea followed with 27 documents. The United Kingdom, Iran, and Italy each contributed around 20, while Finland, Sweden, Japan, Turkey, and Jordan were represented by approximately 13–15 documents. Other countries displayed smaller corresponding-author totals. These figures indicate the geographic distribution of corresponding authors within the retrieved literature, not national prevalence of occupational anxiety or burnout.

The thematic map in Figure 7 positions clusters according to centrality, which indicates their connectedness to the broader conceptual network, and density, which describes internal development within the cluster. The high-centrality, high-density motor-theme quadrant contained impact, job satisfaction, and outcomes. The niche-theme quadrant, characterized by lower centrality and higher density, contained incivility, bullying, and exposure, alongside a smaller grouping of palliative care, death, and end. Burnout, stress, and nurses formed a prominent basic-theme cluster with high centrality and comparatively low density, while resilience, healthcare, and social support occupied another basic-theme grouping nearer the central boundary. COVID-19, compassion fatigue, and anxiety appeared in the lower-centrality, lower-density emerging-or-declining quadrant. This position cannot distinguish an emerging topic from a declining one without complementary longitudinal analysis; it establishes only the thematic configuration observed at the time of the search.

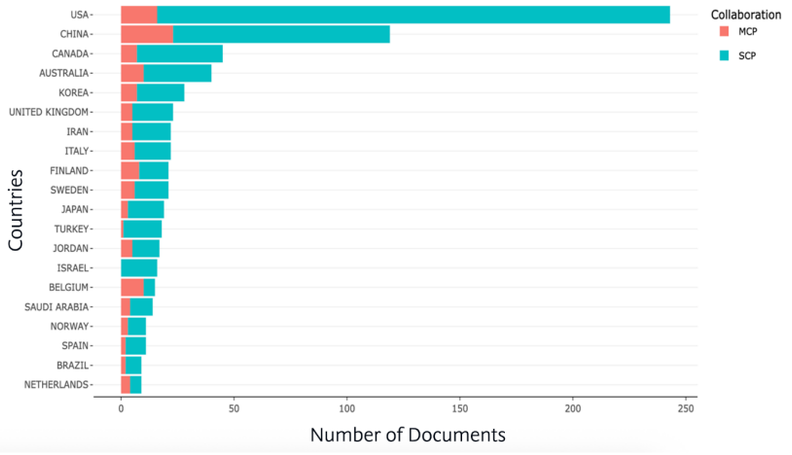


Figure 6. *Corresponding-Author Country Contributions in Anxiety and Burnout Research Among Nurse Managers. Teal bars indicate single-country publications (SCP); coral bars indicate multiple-country publications (MCP). Countries are ranked by total document count.*

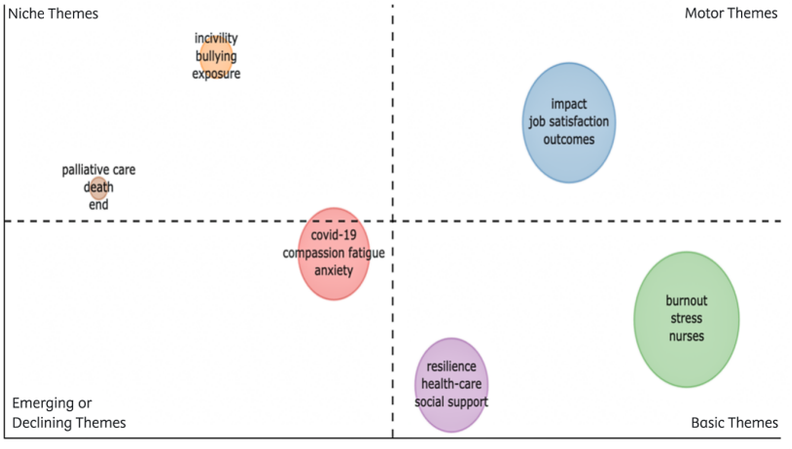


Figure 7. *Thematic Map of Anxiety and Burnout Research Among Nurse Managers. Clusters are positioned by centrality (x-axis) and density (y-axis). Quadrant labels: motor themes (upper right), niche themes (upper left), basic themes (lower right), emerging or declining themes (lower left).*

Table 3 lists the five articles with the highest reported global citation counts in the retrieved set. Vahey et al. [32], who examined nurse burnout and patient satisfaction, ranked first with 645 citations. Laschinger et al. [33] ranked second with 487 citations for research on empowerment, person–job fit, work engagement, and burnout. Hooper et al. [34] ranked third with 441 citations for a comparison of compassion satisfaction, burnout, and compassion fatigue across nursing specialties. Rushton et al. [35] received 430 citations for an investigation of burnout and resilience in high-intensity care settings. Poghosyan et al. [36] ranked fifth with 407 citations for a cross-national study of nurse burnout and quality of care. These citation totals are time-dependent indicators and should be interpreted as counts associated with the WoS retrieval date rather than permanent attributes of the publications.

Table 3. *Five Most-Cited Articles*

Article title	Authors	Citations
Nurse burnout and patient satisfaction	Vahey et al. [32]	645
The impact of staff nurse empowerment on person–job fit and work engagement/burnout	Laschinger et al. [33]	487
Compassion satisfaction, burnout, and compassion fatigue among emergency nurses compared with nurses in other selected inpatient specialties	Hooper et al. [34]	441
Burnout and resilience among nurses practicing in high-intensity settings	Rushton et al. [35]	430
Nurse burnout and quality of care: cross-national investigation in six countries	Poghosyan et al. [36]	407

4. DISCUSSION

Laschinger's position at the top of the authorship ranking is consistent with sustained contributions to research on empowerment, leadership, nursing work environments, and burnout. This line of inquiry has helped establish the organizational context within which subsequent investigations of psychological strain have been interpreted [18]. Labrague, Van Bogaert, Warshawsky, and Cummings also contribute research addressing nurse well-being, management, job satisfaction, or the organizational conditions of clinical practice. Their positions in the selected publication set suggest that leadership-related research frequently approaches burnout and occupational strain through work environment and organizational processes rather than exclusively through individual clinical symptoms. Nevertheless, productivity rankings alone do not establish whether these authors' publications focused specifically on nurse managers or whether the entire article set placed manager outcomes at the centre of analysis.

The leading position of *Journal of Nursing Management*, with 178 articles, is consistent with the prominence of organizational and leadership themes within the retrieved literature. Occupational stress and burnout in nursing management are closely connected to staffing decisions, leadership practices, institutional culture, and workforce retention, making journals with a management focus plausible publication outlets. *Journal of Nursing Administration* and *Journal of Advanced Nursing* occupied the next two positions, reflecting the range of nursing-policy, educational, professional, and clinical issues addressed within the selected records. *BMC Nursing* and *Journal of Clinical Nursing* completed the five most productive outlets. These patterns demonstrate the distribution of the selected articles across journals but do not establish editorial preference, acceptance rates, or the causal determinants of where particular studies were published.

Three Chinese universities shared second place in institutional productivity, with Central South University, Shandong University, and Sichuan University each contributing 29 publications. Huazhong University of Science and Technology followed with 28. This concentration may reflect the scale of nursing research, institutional participation, and indexed scientific output within these organizations. Research conducted during the COVID-19 period documented substantial psychological distress among healthcare workers in China [37]; however, such evidence does not independently explain why particular universities achieved higher publication totals in the present bibliometric sample. More detailed institutional, funding, and collaboration data would be necessary to examine the determinants of this productivity. The institution counts should therefore be treated as descriptive findings rather than evidence of unusually high rates of anxiety or burnout among staff at these universities.

The United States accounted for approximately 240 corresponding-author documents, roughly twice the reported count for China. Canada and Australia contributed fewer articles in absolute terms but displayed relatively greater proportions of publications involving authors from more than one country. These observations are consistent with differences in the composition of international research collaboration across the selected records. They should not, however, be attributed automatically to the maturity of national research networks, the size of healthcare workforces, or the availability of funding without further analysis. The displayed country distribution shows that scholarship captured by this search was concentrated in several high-output settings while also receiving contributions from a wider group of countries.

Publication output remained limited between 1980 and the early 2000s. This interval overlapped with the wider establishment of occupational burnout as a research construct, following foundational work on its conceptualization and measurement [9]. Nursing applications subsequently developed into more distinct lines of inquiry concerning staffing, working environments, well-being, and patient outcomes. From the mid-2000s onward, the selected literature began to show sustained increases in annual publication counts. Growing recognition of the connections among workforce well-being, organizational performance, and patient safety provides a relevant scholarly context for this expansion [3, 5]. Nevertheless, the bibliometric curve alone does not identify the institutional or disciplinary causes of the observed rise.

Between 2016 and 2018, annual output declined from approximately 48 to 25 publications, interrupting the broader upward trend. Changes in indexing coverage, publication cycles, search-term usage, or research priorities could each have contributed to this fluctuation; however, the available bibliometric indicators do not permit these explanations to be distinguished. Output then recovered and increased sharply after 2019, reaching 88 publications in 2025. The overlap with the COVID-19 pandemic is notable. During the pandemic, healthcare workers faced elevated clinical demands, uncertainty, resource pressures, and concerns about personal safety, and related research documented substantial psychological distress, anxiety, and burnout [37–39]. The temporal association is compatible with increased scholarly attention to these conditions but does not establish that the pandemic alone produced the rise in publications. Moreover, 2026 was incomplete at the time of data retrieval; any evaluation of whether output subsequently stabilized or decreased should rely on complete annual records and comparable retrieval procedures.

Burnout and stress dominated the word cloud, while nurses, care, and job satisfaction formed the next group of prominent terms. Anxiety appeared comparatively infrequently. This difference should not be interpreted as evidence that anxiety is unimportant to nurse managers; rather, it suggests that authors in the selected literature used anxiety less frequently as an indexing keyword than burnout or stress. Anxiety may have been measured as a secondary outcome, embedded

within wider mental-health concepts, or omitted from author keywords despite appearing in the article text. The thematic map also placed anxiety in the emerging-or-declining quadrant together with COVID-19 and compassion fatigue. Its placement indicates comparatively limited centrality and internal keyword density at the time of the analysis, but it does not establish whether anxiety research is expanding or contracting. A more focused search that excludes broad stress-only records would help assess its specific research trajectory.

The temporal keyword visualization suggests a succession of emphases within the indexed literature. Earlier terms such as survey, patient mortality, and job dissatisfaction were prominent around 2010–2012. Empowerment, quality of care, teamwork, and nurse retention showed later peaks around 2012–2014, followed by engagement, hospitals, and staff in the 2016–2018 period. Burnout and stress became particularly visible around 2019–2020, while nurses and COVID-19 reached higher density somewhat later. From 2023 to 2025, terms including structural equation model, psychological safety, sleep quality, bullying, perceived stress, and compassion fatigue became prominent in the displayed visualization. Taken together, these patterns are compatible with increasing diversification of the field's vocabulary and methods. They do not, however, establish a uniform transition from descriptive research to complex analytical designs, because keyword trends depend on terminology, indexing, the selected sample, and the settings applied to the visualization.

The keyword co-occurrence network displayed three distinguishable thematic regions. The first, represented in red, centred on burnout and its strong associations with stress and nurses. A second region, displayed in green, grouped organizational constructs such as job satisfaction, work environment, turnover, retention, quality, engagement, and empowerment around the nurse-manager theme. The third, displayed in blue, included resilience, mental health, COVID-19, compassion fatigue, and anxiety. The comparatively thin links between these regions suggest that cross-theme keyword co-occurrence was less prominent than co-occurrence within individual clusters. This finding provides a rationale for future research designs that explicitly connect psychosocial outcomes, leadership practices, and workforce or patient-care outcomes. The spatial separation should not be interpreted as proof that investigators or research communities have operated independently, since bibliometric layouts also reflect computational thresholds, clustering methods, and differences in keyword selection.

The thematic map located six keyword clusters across four strategic quadrants. Impact, job satisfaction, and outcomes occupied the motor-theme quadrant, characterized by relatively high centrality and density, suggesting that these terms formed a well-connected and internally developed part of the sampled literature. Burnout, stress, and nurses appeared as basic themes with substantial centrality and lower internal density; this placement is consistent with the concepts' broad use across diverse nursing research contexts. Resilience, healthcare, and social support constituted another basic-theme cluster closer to the centre of the map. Incivility, bullying, and exposure appeared in the niche-theme quadrant, together with the smaller grouping of palliative care, death, and end. Their position suggests specialized internal development with fewer connections to the wider keyword network, rather than an inherent lack of relevance to practice. COVID-19, compassion fatigue, and anxiety were located within the emerging-or-declining quadrant. Importantly, this quadrant does not identify the temporal direction of change: themes may be relatively new, declining, or simply less connected within the selected dataset. Longitudinal analyses, alternative threshold settings, and examination of the actual underlying articles would be needed before assigning a stable developmental interpretation to any of these clusters.

The five most-cited studies share a focus on the relationship between psychological strain and the organizational or clinical context of nursing, although their designs and populations differ. Vahey et al. [32] examined nurse burnout alongside patient satisfaction, connecting a workforce outcome with an aspect of perceived care quality. Laschinger et al. [33] situated burnout and engagement within a model involving empowerment and person–job fit. Hooper et al. [34] compared compassion satisfaction, burnout, and compassion fatigue among emergency nurses and other inpatient specialties. Rushton et al. [35] explored burnout and resilience among nurses working in high-intensity settings, bringing potential protective factors into the discussion. Poghosyan et al. [36] examined burnout and quality of care across six countries. These publications illustrate why organizational context, workforce well-being, and care outcomes appear prominently within the citation structure. The citation rankings alone cannot demonstrate that these five studies primarily concern nurse managers, nor can citation volume be equated with methodological quality or clinical importance.

5. LIMITATIONS

The study has several limitations. First, the Web of Science Core Collection was the sole bibliographic source. Although WoS supports structured citation analysis and cross-disciplinary searching, the study excluded journals and records outside its indexed coverage, including some regional and non-English-language research. Second, the search strategy included the broad term "stress" alongside "burnout" and "anxiety" to capture a wider psychosocial literature. As a result, the final set may contain articles discussing occupational stress without directly measuring anxiety or explicitly focusing on nurse managers as a participant group. The word cloud, keyword network, and thematic map therefore describe the retrieval-defined literature rather than the entire body of empirical evidence about anxiety among nurse managers. Third, the analysis included only English-language articles and excluded reviews, editorials, conference proceedings, and other

publication types. Fourth, bibliometric indicators and citation counts are dependent on the retrieval date, indexing rules, author affiliations, keyword harmonization, and analysis settings. Fifth, the reported analysis did not include sensitivity assessments using alternative search strings, research-area restrictions, or keyword-harmonization strategies, so the stability of the thematic maps under different settings is not established. Future work could use a narrower population definition, test anxiety as a standalone search term, compare bibliographic databases, and report fully documented keyword-cleaning and sensitivity procedures.

6. CONCLUSION

The bibliometric analysis of 847 articles indicates substantial growth in the literature related to nurse leadership, burnout, anxiety, and occupational stress, particularly during the period following the emergence of COVID-19. The keyword co-occurrence network was organized into three prominent thematic regions: a burnout-centred psychosocial cluster, an organizational outcomes cluster, and a cluster linking resilience, mental health, and pandemic-related concepts. The limited visible links between these regions suggest opportunities for greater integration of research on individual well-being and institutional practice. Anxiety occupied a comparatively small position in the author-keyword word cloud, appeared near the periphery of the co-occurrence network, and was located in the emerging-or-declining quadrant of the thematic map. These findings support a conclusion about the relatively low prominence of anxiety as a keyword in this retrieval-defined literature, rather than a categorical conclusion that anxiety has rarely been measured or studied among nurse managers.

Impact, job satisfaction, and outcomes appeared in the motor-theme quadrant, indicating relatively strong conceptual connections and internal coherence within the mapped keyword network. These results underscore the prominence of organizational conditions and work-related outcomes in the selected literature. Future research could examine staffing pressures, supervisory support, leadership practices, organizational culture, and the quality of the nursing work environment alongside individual psychological outcomes. For nurse managers, interventions that address organizational structures and workload may complement rather than replace initiatives directed at individual coping and resilience. The bibliometric results themselves do not estimate the effectiveness of any such interventions, and corresponding clinical recommendations should therefore be supported by targeted empirical evaluations.

Because the three major keyword clusters were relatively distinct, future studies may benefit from integrating occupational stress, anxiety, burnout, leadership, workforce retention, and quality-of-care outcomes in a single analytical design. Anxiety should be examined explicitly, with validated measures and appropriate attention to its distinction from burnout and general stress. Longitudinal and multicentre studies could investigate changes in psychological outcomes across pre-pandemic, pandemic, and recovery periods, while qualitative work could clarify the specific demands faced by nurse managers. Finally, complete annual publication data will be required to determine whether the recent growth in scholarly output represents a sustained expansion of the field or a temporary concentration of pandemic-related research interest.

Author Contributions

Both authors contributed equally to the study and manuscript preparation, reviewed and approved the final version, and accept responsibility for the work.

Conflicts of Interest

The authors declare no competing interests.

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Data Availability

Data sharing is not applicable to this article.

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