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Bibliometric analysis and science mapping of publications in *Nursing and Midwifery Studies* (eISSN: 2322-1674)

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Abstract

Background: *Nursing and Midwifery Studies* (NMS) (eISSN: 2322-1674) has published 483 articles between 2012 and 2024, all indexed in the Web of Science (WoS), with 219 articles (2019–2024) also indexed in Scopus.
Objectives: This bibliometric study aimed to map the journal's intellectual structure, publication trends, citation patterns, altmetric impact, and thematic evolution over time.
Methods: This applied scientometric investigation retrieved bibliographic, citation, and altmetric data for 483 NMS articles from WoS, Scopus (219 articles), and ResearchGate. Author names and institutional affiliations were standardized prior to analysis. Performance analysis (including publication output, citation impact, and usage metrics) and science mapping (keyword co-occurrence, and author, institution, and country collaboration networks) were performed using *VOSviewer*. A total of 2,065 raw author keywords were consolidated into 981 unified terms and subsequently clustered into five major thematic groups.
Results: Original research articles accounted for 86% of publications. The mean citation count per cited article was 8.4 in WoS (79.3% cited; maximum 81 citations), 4.2 in Scopus (73.51%; maximum 48), and 15.45 in ResearchGate (81.57% indexed; average reads: 683.26; maximum 55,429). Thematic clustering revealed five dominant research areas: nurses' mental health (stress: 40 occurrences; burnout; COVID-19), chronic disease management (quality of life: 38; anxiety: 37), maternal and women's health (pregnancy, midwifery), nursing education (students: 40), and patient care. Kashan University of Medical Sciences emerged as the most productive institution, contributing 134 articles and engaging in collaborations spanning 37 countries.
Conclusion: This analysis highlights the evolving scientific landscape of NMS, emphasizing its strong potential for continued growth in high-impact areas such as mental health and COVID-19 research. Strengthening international collaborations, organizing thematic special issues, and enhancing altmetric engagement are recommended strategies to advance the journal's visibility and trajectory toward Q1 ranking.

Keywords: Altmetrics, Bibliometrics, Midwifery, Nursing, *Nursing and Midwifery Studies*.

Introduction

Nursing knowledge represents one of the most essential foundations within the health sciences, forming a cornerstone of evidence-based practice and research. Nurses continuously serve on the front lines of patient care, health promotion, and treatment delivery. Therefore, it is crucial that they remain informed about the latest scientific findings and advancements to effectively fulfill their professional responsibilities.[1] A comprehensive understanding of nursing research plays a vital role in improving the quality of healthcare delivery. Since 1972, the volume of nursing research has expanded substantially,[2] reflecting both the growing recognition of the field's importance and the accelerating pace of knowledge generation.[3]

Parallel to this increase in scholarly output, the use of bibliometric approaches to describe and evaluate nursing literature has grown markedly over the past two decades.[4] Bibliometrics serves to systematically describe and represent scientific knowledge within a discipline by analyzing large sets of bibliographic data. This methodology enables researchers to gain an overview of a

field's structure, identify knowledge gaps, and generate new research questions. By extending beyond simple publication and citation counts, bibliometric analysis provides deeper insights into intellectual patterns, thematic trends, and the structural evolution of scientific research.[4]

These analyses, facilitated through visualization tools such as *CiteSpace*, allow researchers to characterize both the intellectual base and the conceptual frontiers of a discipline.[5] Bibliometric techniques are typically divided into two complementary approaches: performance analysis and science mapping. Performance analysis focuses on evaluating productivity and impact, such as publication and citation trends, while science mapping explores relationships among research elements, such as networks of co-authorship, co-word occurrence, and co-citation.[4] Among the available tools, *VOSviewer* is widely recognized for constructing and visualizing bibliometric networks, encompassing journals, researchers, and publications. These networks can be generated based on citation links, bibliographic coupling, co-citation, or co-authorship relationships. Moreover, *VOSviewer* incorporates advanced text-mining functions to detect and visualize co-occurrence patterns of key terms within scientific texts.[6]

Bibliometric studies in nursing have generally focused on six principal areas: global assessments of nursing literature; topic-specific nursing research; nursing education; the professional aspects of nursing practice; methodological frameworks in nursing research; and analyses of nursing publications within particular countries or regions.[4] Despite these contributions, there remains a notable gap in comprehensive bibliometric evaluations of nursing journals. The few existing studies are either limited in scope or outdated.[7] Although citation analyses have been extensively conducted across various scientific disciplines, relatively few investigations have explored the content structure and bibliographic patterns of nursing journals.[1]

Addressing this gap, the present study aims to provide a detailed bibliometric and science mapping analysis of *Nursing and Midwifery Studies* (NMS) (eISSN: 2322-1674). Such an analysis is essential for offering evidence-based editorial guidance and enhancing author awareness by generating a coherent visualization of topic trends, synonym clusters, author collaboration hubs, institutional and country-level networks, and impact metrics at the journal level, rather than only at broader disciplinary levels.

Objectives

NMS is an international, open-access, peer-reviewed journal that encompasses a wide range of nursing and midwifery subdisciplines. It has been published continuously since 2012 and is currently indexed in both Scopus and Web of Science (WoS) databases. This study aims to elucidate the intellectual structure and thematic evolution of NMS publications from 2012 to 2024 through functional and network analyses and to outline future directions for the journal by offering evidence-based policy recommendations for editors, authors, and other stakeholders.

Methods

The present study was an applied investigation in terms of purpose and a scientometric study in terms of methodology. It employed a retrospective bibliometric analysis and science mapping of 483 articles published in the NMS from 2012 to 2024. Bibliographic information, citation data, and altmetric indicators for these articles were primarily extracted from the WoS database. Subsequently, through manually verifying the presence of each article (using its title) in Scopus and ResearchGate, we extracted additional citation metrics and altmetric data from these sources, and integrated into a comprehensive dataset using Microsoft Excel [Table-1].

Authors' names and institutional affiliations were standardized to ensure consistency and reduce variations arising from differing notation styles. The most frequent and logical format was selected for each author to mitigate data dispersion. For instance, multiple versions of "Seyyed Gholamabbas Mousavi" (e.g., *Moosavi S. Gh., Mosavi Gh. A., Mousavi Gholamabbas*) were consolidated into a single standardized form. Institutional names were also harmonized for uniformity -for example, *Kashan University of Medical Sciences* was consistently coded as *KASHAN UNIV MED SCI* or *MED SCI UNIV KASHAN*. Following this standardization process, the most productive authors were identified based on publication count, citation performance, and altmetric impact.

VOSviewer software was utilized to perform keyword co-occurrence analysis. Both author-supplied and indexed keywords were standardized through a detailed normalization process that included correcting typographical and spelling variations, unifying singular and plural forms, and expanding abbreviations into complete terms. The resulting bibliometric network visualization displayed keywords as nodes, where the circle size represented keyword frequency, and the thickness and proximity of connecting lines denoted the strength of co-

occurrence relationships. This approach allowed for the identification of thematic clusters and visualization of the intellectual structure of the journal's research landscape.

Table-1. Bibliometric analysis indicators and items

Main Category	Index / Item	Definition / Explanation
Demographic Variables	Bibliographic information	Year, article type, title, author(s), author country, organizational affiliation.
Web of Science (WoS)	Citation count	Total citations received in the WoS database.
	180-Day usage count	Number of article views or downloads in the last 180 days (WoS).
	Since 2013 usage count	Total article views or downloads since 2013 (WoS).
	Micro-level classification	Meso Citation Topics– more specific thematic areas within each macro domain.
	Meso-level classification	Micro Citation Topics– fine-grained research areas at the level of closely related publications.
Scopus	Citation count	Total citations received in the Scopus database.
	Field-Weighted Citation Impact (FWCI)	Ratio of an article's citations to the average citations of similar articles (by subject, type, publication year).
	Prominence percentile	Percentile rank based on recent citations, views, and journal CiteScore.
	Mendeley readers	Number of readers saved in the reference manager Mendeley.
	News mentions	Count of mentions in global news outlets.
ResearchGate (RG)	Research interest score	Platform's proprietary score based on user engagement with the article.
	RG citations	Citation count within the ResearchGate network.
	Recommendations	Number of recommendations by ResearchGate users.
	RG reads	Number of reads/views on the ResearchGate platform.

Results

Article publication trends

NMS published a total of 483 articles between 2012 and 2024. Figure-1 illustrates the annual publication distribution.

All 483 articles were indexed in the WoS, while 219 articles published between 2019 and 2024 were additionally indexed in Scopus. Figure-2 presents the distribution of publications by article type. As shown in Figure-2, original research articles accounted for the majority of publications (415 articles, 86%), followed by letters, editorial materials and review articles.
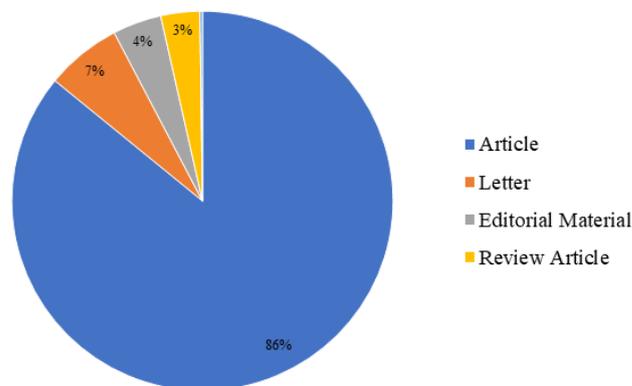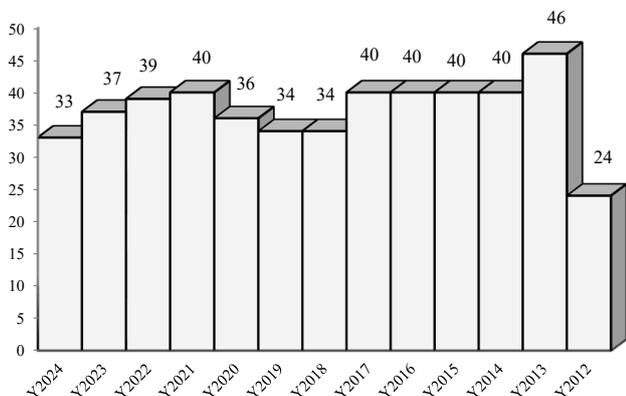
Figure-2. Articles by type

Figure-1. Number of articles per year

ResearchGate altmetric status

Table-2 summarizes the ResearchGate altmetric performance of the journal's publications. According to Table-2, 394 articles (81.57%) were indexed on ResearchGate, all of which had received at least one read. The mean ResearchGate metrics were as follows: 15.45 citations, 1.95 recommendations, and 683.26 reads per article.

Citation metrics in WoS and Scopus

As shown in Table-3, among the 483 articles, 383 (79.3%) received at least one citation in WoS, with a mean of 4.8 citations per cited article. Additionally, 136 articles (28.15%) had at least one recorded use in the past 180 days, while 83.64% showed usage activity since 2013.

In Scopus, 161 of 219 indexed articles (73.51%) had been cited at least once, with a mean of 4.2 citations per cited article. All Scopus-indexed papers had been read on Mendeley, with an average of 18.82 reads per article.

Table-2. ResearchGate altmetrics indicators for articles

Platform	Number of indexed documents (%)	Indicator	Number of non-zero occurrences (%)	Total occurrences	Average number of non-zero occurrences	Min	Max
ResearchGate	394 (81.57%)	Research interest score	394 (100%)	-	-	0.1	141.4
		Citations	352 (89.34%)	5440	15.45	0	219
		Recommendations	97 (24.6%)	190	1.95	0	9
		Read	394 (100%)	269,205	683.26	1	55429

Table-3. Article status based on WoS and Scopus metrics

	Number of indexed documents (%)	Indicator	Number of non-zero occurrences (%)	Total occurrences	Average number of non-zero occurrences	Min	Max
WoS	483 (100%)	Citation	383 (79.3%)	3243	8.4	0	81
		180-Day usage count	136 (28.15%)	241	1.77	0	11
		Since 2013 usage count	404 (83.64%)	2872	7.1	0	45
Scopus	219 (45.34%)	Citation	161 (73.51%)	677	4.2	0	48
		Read (Mendeley)	219 (100%)	4123	18.82	1	107
		FWCI	147 (67.12%)	-	-	0.17	7.34
		Prominence	216 (98.63%)	-	-	0	99.869
		News mentions	43 (19.63%)	43	1	0	1

Top articles based on citation and altmetric indicators

Table-4 list the highest-ranked articles according to citation and altmetric metrics.

As indicated in Table-4, the most influential articles focused on themes such as COVID-19, mental health, quality of work life, and nursing education. Iranian publications -often involving international collaboration- demonstrated significant global visibility, particularly in mental health and clinical nursing. Older papers (2014–2016) tended to accumulate higher long-term citation counts, while more recent publications (2020 onward) achieved rapid impact rates, largely reflecting their relevance to global health crises such as the COVID-19 pandemic.

Meso and Micro classification of articles

Articles were categorized into 76 *Meso* and 153 *Micro* thematic classifications. Within the Meso categories, the leading fields were *Nursing* (n=94) and *Obstetrics & Gynecology* (n=48), followed by *Psychiatry* (n=30) and *Palliative Care* (n=28).

At the Micro level, the most frequent topics included *Nursing* (n=66), *Mindfulness* (n=21), *Breech Presentation* (n=20), and *Alternative Medicine* (n=13).

Authors, institutions, and countries of high productivity

After name standardization, a total of 1,307 unique authors were identified, of whom 1,064 contributed to a single article.

The most prolific author was Mohsen Adib-Hajbaghery (46 publications), followed by Negin Masoudi-Alavi (n=22), Zohreh Sadat (n=15), Esmaeil Azizi-Fini (n=13), Leila Valizadeh (n=12), and Masoumeh Abedzadeh-Kalahroudi (n=11).

In terms of institutional affiliation, 234 universities and organizations contributed to the journal's publications. *Kashan University of Medical Sciences* ranked first with 134 articles, followed by *Tehran University of Medical Sciences* (n=57) and *Isfahan University of Medical Sciences* (n=45).

Author keyword analysis

The 483 analyzed articles contained a total of 2,065 author keywords. Following the unification process -where similar terms such as *accident* and *accidents* were standardized- a refined list of 981 unique keywords was obtained [Table-5]

Table-4. Top articles by citation and altmetrics indicators

Platform	Indicator		Author	Title
ResearchGate	Citation	219	Moradi et al., 2014[8]	Quality of working life of nurses and its related
	Research interest score	141.40		
	Read	55429	Karimi et al., 2015[9]	Florence nightingale: the mother of nursing
	Recommendation	9	Sokhanvar et al., 2018[10]	Hospital nurses' job security and turnover intention and factors contributing to their turnover intention: a cross-sectional study
WoS	Citation	81	Azizi-Fini et al., 2015[11]	Critical thinking skills in nursing students: a comparison between freshmen and senior students
	180-Day usage count	11	Didevar et al., 2022[12]	The effectiveness of heat therapy and cold therapy in labor pain intensity in primiparous women: a randomized controlled trial
	Since 2013 usage count	45	Ghazavi et al., 2016[13]	Effect of a family-oriented communication skills training program on depression, anxiety and stress in older adults: a randomized clinical trial
Scopus	Citation	48	Heidarijamebozorgi et al., 2021[14]	The prevalence of depression, anxiety, and stress among nurses during the coronavirus disease 2019: A comparison between nurses in the frontline and the second line of care delivery
	FWCI	7.34		
	Read mendeley	107	Saricam, 2020[15]	COVID-19-Related anxiety in nurses working on front lines in Turkey
	Prominence	99.869	Rad et al., 2023[16]	Challenges nurses experienced in caring for patients with COVID-19 admitted to the intensive care units: a qualitative study

Table-5. Classification of articles based on author keywords

Category	Number of keywords	Main keywords
Chronic Diseases & Treatment	105	Cancer, Diabetes Mellitus, Coronary Artery, Hemodialysis, Blood pressure
Maternal & Women's Health	95	Midwifery, Pregnancy, Mother, Women, Menopause
Mental Health & Psychology	85	Anxiety, Stress, Depression, Self-efficacy, Resilience
Research & Methodology	55	Qualitative research, Meta-analysis, Psychometrics, Systematic review
Complementary & Alternative Medicine	45	Massage, Acupressure, Aromatherapy, Herbal Medicine, Music Therapy
Nursing & Midwifery Education	45	Student, Education, Nursing student, Teaching, Learning
Critical & Intensive Care	42	ICU, Operating room, Emergency medical service, CCU, Emergency department
Specialized Care Areas	40	Pain management, Terminal care, Wound Healing, Palliative care
Quality of Life & Well-being	35	Quality of Life, Job Satisfaction, Self-Care, Mindfulness, Spirituality
Pediatric & Neonatal Care	35	Child, Adolescence, Neonatal, Infant, Pediatric Nursing
Professionalism & Ethics	30	Ethics, Moral distress, Caring, Empathy, Dignity
Geriatric Care	25	Aging, Older people, Fall, Frailty, Nursing home
Patient Safety & Infection Control	25	Patient safety, Medication Errors, Hygiene, Chlorhexidine
Violence & Social Pathology	20	Workplace violence, Domestic Violence, Violence, Abuse

Figure-3. Keywords with more than eight repetitions

As illustrated in Figure-3, the most frequently used keywords included *Nurse*, *Nursing*, *Iran*, *Qualitative Research*, *Student*, and *Anxiety*.

Word co-occurrence analysis

A keyword co-occurrence network was generated using *VOSviewer* based on author-provided and database-extracted terms. The initial network contained 447 keywords; Figure-4 presents the refined map including terms appearing at least six times, revealing five distinct thematic clusters. Figure-5 highlights the highest-frequency keywords.

The network consisted of 60 high-frequency keywords distributed across five clusters, where node proximity represented semantic relationships and co-occurrence linkages.

Figure-4. Word co-occurrence map

Figure-5. Most frequent keywords

Network centrality (Link weights)

Within the network, *Nurses* constituted the most central node (128 occurrences, 49 links, total link strength = 221), followed by *Education* (43 occurrences, 42 links, strength = 108). Core keywords such as *Stress*, *Anxiety*, *Depression*, and *Quality of Life* represented the journal's principal research axes.

Temporal and impact metrics

The keyword *COVID-19* emerged as the most recent topic (mean publication year: 2022.35), followed by *Fatigue* and *Resilience*. The highest citation averages were associated with *Renal Dialysis* (mean citations: 14) and *Music Therapy* (mean citations: 13.43).

Cluster analysis

Red cluster: Complementary care in chronic diseases

As presented in Table-6, *Quality of Life* was identified as a central concept in both this cluster and the journal overall (frequency: 38; total link strength: 80), positioned prominently at the network's core. *Renal Dialysis* recorded the highest average raw citation count (14), indicating strong impact among hemodialysis-related studies. *Heart Diseases* followed with an average of 9.86 citations and normalized citation value of 1.45.

Keywords such as *Sleep* and *Fatigue* showed relatively recent publication years (~2020), suggesting emerging research attention. Other related terms -including *Complementary Therapies*, *Herbal Medicine*, and *Massage*-clustered closely with *Quality of Life* and symptom-related concepts such as *Fatigue* and *Pain*, emphasizing the integrative use of complementary approaches to enhance chronic disease management and overall well-being.

Table-6. Red cluster keywords and metrics

Label	Links	Total link strength	Occurrences
Quality of life	32	80	38
Cancer	24	44	16
Caregivers	22	49	14
Palliative care	29	43	14
Exercise	17	23	13
Sleep	19	28	12
Fatigue	20	30	11
Diabetes mellitus	8	8	10
Self-care	12	20	10
Massage	15	16	9
Renal dialysis	15	21	9
Complementary therapies	12	17	8
Teaching	14	18	8
Breast cancer	17	21	7
Chemotherapy	9	13	7
Heart diseases	7	9	7
Menopause	9	11	7
Herbal medicine	9	14	7

Green cluster: Core nursing and patient care concepts

Table-7 presents the keywords included in the green cluster, along with their respective weighting criteria and scores.

Publications within this cluster primarily spanned 2016–2019 and represented the journal's foundation in clinical nursing and patient care. Dominant themes included nurses' *Knowledge*, *Attitudes*, and *Practices* toward patient and family interactions.

The keywords *Communication* and *Risk Management* reflected an emphasis on non-technical competencies. Although *Risk Management* showed high occurrence (n=19), its relatively low average citation count (4.26) suggested a focus on locally applied studies with limited international reach.

Table-7. Green cluster keywords and metrics

Label	Links	Total link strength	Occurrences
Experiences	32	61	23
Attitudes	24	52	20
Knowledge	19	39	20
Risk managements	20	27	19
Behaviors	19	32	15
Intensive care units	14	21	15
Patient care	11	17	13
Mothers	24	38	12
Communication	14	20	11
Mortality	21	26	10
Families	21	35	9
Parents	16	24	9
Decision making	9	12	8
Diagnosis	15	16	7
Premature infant	8	10	7

Blue cluster: Symptom management in maternal and palliative care

Table-8 presents the keywords in the blue cluster, along with their weighting criteria and corresponding scores.

Music Therapy exhibited the highest average citation rate (13.43), denoting significant scholarly influence. *Resilience* had the most recent mean publication year (2019.7), highlighting it as an emerging field of interest. *Anxiety* displayed the highest total link strength (101), demonstrating broad thematic connectivity.

This cluster interconnected mental health topics -such as *Anxiety* (link strength: 101) and *Depression* (84)- with maternal and palliative care concepts, including *Pain*, *Pregnancy*, and interventions like *Acupressure* and *Music Therapy*. Overall, *Music Therapy* (average citations: 13.4) and *Depression* (normalized citations: 1.88) emerged as highly influential topics, with most studies published between 2018 and 2020.

Yellow cluster: Mental health and nurses' professional well-being (Crisis response)

As summarized in Table-9, *Stress* was the most dominant keyword (40 occurrences; total link strength: 113), while *COVID-19* appeared as the most recent (mean publication

year: 2022.4), reflecting the journal's engagement with pandemic-related research. *Emergency Medical Service* exhibited a high citation average (11.89) despite lower frequency (n=9), indicating strong influence in emergency nursing. The association between *COVID-19, Burnout,* and *Violence* underscored the pandemic's impact on nurses' occupational health. *Job Satisfaction* (average citations: 11.5) and *COVID-19* (normalized citations: 1.6) were also highly cited topics. Publications in this cluster were predominantly from 2019 to 2022 and represented the journal's most productive and impactful research area, characterized by the highest normalized citation scores.

Table-8. Blue cluster keywords and metrics

Label	Links	Total link strength	Occurrences
Anxiety	32	101	37
Depression	34	84	27
Pain	19	46	24
Pregnancy	20	35	21
Delivery	14	33	16
Risk Factors	22	30	15
Mental Health	19	35	12
Obstetric	14	21	11
Acupressure	11	17	9
Music Therapy	9	17	7
Resilience	12	13	7

Table-9. Yellow cluster keywords and metrics

Label	Links	Total link strength	Occurrences
Nurses	49	221	128
Stress	34	113	40
Burnout	14	38	14
Covid-19	17	39	14
Job satisfaction	15	30	11
Satisfaction	11	19	10
Violence	8	11	10
Emergency medical service	8	13	9

Purple cluster: Nursing education and professional competence

Within this cluster [Table-10], *Education* served as the central concept and one of the most influential nodes in the entire journal network (43 occurrences; total link strength: 108). The keyword *Students* (40 occurrences; total link strength: 77) highlighted the journal's strong emphasis on nursing education and professional training.

Clinical Competence also emerged as a critical and specialized concept, representing a key focus in the journal's educational research domain.

Table-10. Purple cluster keywords and metrics

Label	Links	Total link strength	Occurrences
Education	42	108	43
Students	25	77	40
Midwifery	20	40	20
Self-concept	19	32	18
Nursing students	14	24	15
Perceptions	18	38	15
Clinical competence	11	16	8
Patient safety	9	12	7

Discussion

This bibliometric analysis and science mapping of *NMS* (2012–2024) explored publication trends, citation patterns, altmetrics, thematic structures derived from keyword co-occurrence, and author collaboration networks across 483 WoS–indexed articles, of which 219 were additionally indexed in Scopus after 2019. Author keyword analysis identified the journal's principal research areas, including mental health and psychology (e.g., anxiety, stress, depression), chronic disease management (e.g., cancer, diabetes, hypertension), and maternal and women's health (e.g., midwifery, pregnancy, menopause). Nursing and midwifery education, along with qualitative research methodologies, also emerged as dominant themes, reflecting the journal's disciplinary priorities and its focus on clinical and educational scholarship.

Keyword co-occurrence clusters

Keyword co-occurrence analysis identified six clusters. The first cluster focused on complementary care in chronic disease management, with "quality of life" (QoL) emerging as a pivotal concept linked to central nursing and midwifery topics such as *cancer, breast cancer, fatigue, sleep, palliative care, anxiety, depression, pain, self-care, renal dialysis,* and *complementary therapies.*[17–20] This cluster illustrates how QoL functions as a unifying construct across domains of chronic illness, mental health, and clinical education, reaffirming its status as a core outcome measure in nursing and midwifery research.

Non-pharmacological interventions were particularly prominent, including intradialytic exercise for improving QoL in hemodialysis patients[17] and mindfulness-based stress reduction for IVF patients.[18] Key factors

influencing QoL included sociodemographic and psychological distress in perinatal women[19] and resilience and body image among breast cancer patients receiving chemotherapy.[20] These findings reinforce the conceptual centrality of QoL as a nursing outcome, where psychosocial and behavioral components -such as resilience and mental health-drive holistic care models aligned with global shifts toward integrative, patient-centered approaches.

"Renal dialysis," one of the highest-cited keywords, reflects the journal's strong engagement with nephrology nursing. Related studies have addressed diverse topics, including humor therapy for anxiety,[21] intradialytic exercise interventions,[17] alongside risk identifications such as falling/frailty correlations[22] and Ziziphus jujube and Echium amoenum on pruritus in hemodialysis patients.[23] Collectively, this evidence base -spanning humor, exercise, herbal therapy, and telehealth-supports multidisciplinary strategies for symptom reduction and care optimization.

Complementary and alternative medicine also features prominently. Interventions such as aromatherapy massage with passionflower or sesame oils for post-CABG pain[24] and foot reflexology for reducing nurse fatigue[25] demonstrate the clinical potential of low-risk, touch-based therapies to alleviate pain, discomfort, and occupational fatigue. These findings advocate for the integration of complementary interventions into routine nursing protocols to enhance patient and provider well-being.

Overall, this cluster highlights *NMS*'s commitment to advancing research on chronic disease experiences (e.g., cancer, diabetes, kidney and heart failure) and non-pharmacological symptom management, reflecting a broader disciplinary trend toward holistic, evidence-informed care practices.

The second cluster encompassed foundational nursing concepts and patient care, representing the core of the nursing discipline. It examined knowledge, attitudes, and practices among diverse populations, including nursing and midwifery students, healthcare providers, patients, and families. Studies explored personal perspectives and beliefs- such as older adults' attitudes toward end-of-life issues,[26] emergency nurses' views on interprofessional collaboration,[27] and nursing students' perceptions of patient privacy.[28] Other investigations assessed awareness and knowledge, including Iraqi adolescents' understanding of polycystic ovary syndrome[29] and nursing students' knowledge and risk perceptions of COVID-19.[30]

Research within this cluster also focused on skill development and clinical performance, such as the impact of clinical supervision on medication safety competencies[31] and the effects of simulation-based training on parents' fever management.[32] Collectively, these studies underscore the journal's educational mission to strengthen professional competence, ethical practice, and patient safety.

The third cluster linked mental health, midwifery, and palliative care, emphasizing the role of music therapy and muscle relaxation as effective non-pharmacological interventions. Evidence from these studies demonstrated significant reductions in anxiety among patients undergoing invasive cardiac procedures (e.g., angioplasty), even when no measurable changes in hemodynamic parameters were observed.[33,34] These interventions -safe, inexpensive, and easy to implement-hold promise for integration into routine nursing practice to enhance patients' psychological well-being.

High-link-strength keywords such as *anxiety* and *depression* dominated this cluster, spanning studies on both nurses and students. Research included analyses of depression, anxiety, and stress prevalence among nurses during the COVID-19 pandemic;[14,15] the use of augmented virtual reality to mitigate student anxiety;[35] and guided imagery for exam-related anxiety.[36] Other works examined anxiety reduction through storytelling,[37] humor therapy,[21] and muscle relaxation.[33] These studies reinforce anxiety as a cross-cutting issue in patient, student, and professional populations, while showcasing a diverse array of evidence-based interventions suitable for clinical integration.

Acupressure emerged as a versatile, evidence-supported intervention with applications ranging from blood glucose regulation[38] to occupational well-being by alleviating compassion fatigue and improving sleep quality.[39] The cumulative evidence positions acupressure as a valuable component of nursing protocols to improve physiological and psychological outcomes across care settings.

Another cluster addressed nurses' occupational well-being and workplace mental health, with *stress* identified as the most dominant node and *job satisfaction* and *burnout* as major correlates. The association between *COVID-19*, *burnout*, and *violence* underscores the pandemic's profound psychological toll on healthcare providers. Burnout was analyzed as a multifactorial phenomenon influenced by individual, organizational, and crisis-specific factors, such as pandemic-related stressors.[40-42]

Stress manifested across multiple populations -nurses, midwives, healthcare staff,[14,43] IVF patients,[18]

postmenopausal women,[44] and nursing students.[45] Interventions to mitigate stress encompassed system-level strategies (e.g., improved work environments, reduced workloads), individual-level coping mechanisms (e.g., mindfulness, relaxation), and broader environmental or complementary approaches integrated within comprehensive care programs. *Job satisfaction* ranked among the most frequently cited topics, highlighting *NMS*'s sustained focus on occupational well-being amid global crises such as COVID-19. Overall, this cluster delineates the interconnected nature of workplace stress, burnout, and satisfaction in nursing contexts.

The final cluster emphasized nursing and midwifery education, where *education* and *student* emerged as core concepts, and *clinical competence* represented a specialized subtheme. Studies concentrated on enhancing practical and professional skills through innovative pedagogical methods such as simulation-based training,[46] preceptorship programs for midwifery students,[47] and interprofessional education to improve non-technical skills among anesthesia teams.[48]

Additional investigations addressed psychosocial and ethical dimensions of education, including ethical challenges in clinical environments,[49] nursing students' health and lifestyle behaviors (e.g., sleep quality),[50] gender norms and professional identity,[51] and the use of digital technologies to reduce anxiety among new students.[35] Another subset explored graduates' roles in patient and community education, covering barriers to patient education in Iran,[52] family-centered education for improved clinical outcomes,[53] and public education through simulation-based models.[32]

Scientific collaborations and geographical distribution

The majority of *NMS* publications originated from Iranian authors and institutions, mirroring patterns observed in other nursing journals. For example, the *International Journal of Nursing Studies* and *Journal of Advanced Nursing* are predominantly represented by the United Kingdom,[1,54,55] while U.S. institutions dominate in the *Journal of Transcultural Nursing* and *New England Journal of Medicine.*[56,57] Comparable national dominance appears in fields such as library and information science (e.g., *Journal of Documentation*) and clinical medicine (e.g., *Journal of the College of Physicians and Surgeons Pakistan*).[58,59] This phenomenon underscores the geographic concentration of scholarly production around host-country institutions and domestic collaborative networks.

Higher author productivity was associated with broader collaborative activity, consistent with Kumar's findings on the positive relationship between network connectivity and research output.[60] International co-authorship further enhances visibility and citation impact, as demonstrated by McManus et al.,[61] and Kohus et al.,[62] who found that internationally co-authored articles are more likely to be published in Q1 journals. Similarly, Wang et al.,[63] identified limited international engagement as a key barrier to impact factor growth in regional journals.

Top articles by citation and altmetric indicators

The journal's most cited and influential articles focused on mental health, COVID-19, quality of work life, and nursing education. Topics related to quality of work life, professional identity, and job security attracted the highest engagement on ResearchGate, while mental health and COVID-19 studies demonstrated greater citation impact in Scopus. For instance, Heidarijamebozorgi et al., (2021) achieved a Field-Weighted Citation Impact (FWCI) of 7.34, while Rad et al., (2023) obtained high salience scores, representing some of the journal's most impactful contributions.[14,16]

Overall, 81.57% of *NMS* articles were indexed on ResearchGate, all with at least one read, consistent with prior studies highlighting the role of research social networks in enhancing academic visibility.[64,65] The mean citation rate of 15.45 per article aligns with previous findings linking altmetrics engagement with increased scholarly impact.[66] Multiple investigations confirm strong correlations between ResearchGate metrics and citation counts in Scopus, WoS, and Essential Science Indicators,[67–69] reinforcing the role of self-archiving and open-access dissemination in amplifying visibility and impact.[70]

Limitations

This study's findings are subject to certain methodological limitations inherent in bibliometric research. The analysis relies entirely on the accuracy and completeness of database records in WoS and Scopus, and any inconsistencies in indexing could influence the results. Moreover, as the study focused on a single journal, its findings cannot be directly generalized to the entire field of nursing and midwifery research. Finally, while quantitative bibliometric techniques effectively reveal large-scale trends, they cannot assess the qualitative rigor or clinical relevance of individual publications.

Future studies could address these limitations by performing comparative bibliometric analyses across multiple nursing journals and integrating quantitative mapping with qualitative content evaluation of highly cited papers to provide deeper interpretive insights.

Conclusion

This bibliometric analysis delineates the publication trends, intellectual structure, and collaboration patterns of *NMS* (2012–2024), highlighting notable growth in publication volume, thematic diversity, and academic reach. Core focus areas included mental health, women's health and midwifery, quality of life and chronic diseases, nursing education, and critical care -reflecting alignment with clinical priorities and public health needs.

Co-occurrence and citation analyses identified *nurses*, *stress*, *anxiety*, *quality of life*, and *education* as central keywords, with emerging themes such as *COVID-19*, *resilience*, and *fatigue* gaining prominence. With contributions from 37 countries and 483 WoS-indexed publications, the journal demonstrates increasing international visibility and evolving global relevance.

Policy recommendations derived from this analysis include enhancing visibility through open-access self-archiving, participation in academic networking platforms such as ResearchGate, and the use of graphical abstracts and standardized keywords; launching thematic calls in high-impact areas, including nurses' mental health, complementary care, and educational innovation; expanding international collaboration by engaging foreign editors, encouraging multinational authorship, and facilitating expedited peer review for collaborative submissions; and establishing a strategic five-year roadmap that incorporates annual "State of the Science" reports informed by scientometric monitoring at both meso- and micro-levels. Implementing these strategies will strengthen the journal's scholarly influence, enhance its citation performance, and position *NMS* as a leading regional and international reference in nursing and midwifery research.

Abbreviations

Bibliometric analysis: BA; Science mapping: SM; Nursing and Midwifery Studies: NMS; Web of Science: WoS; Field-Weighted Citation Impact: FWCI; ResearchGate: RG; Research Interest Score: RIS; Quality of Life: QoL; Social Determinants of Health: SDH; Kashan University of Medical Sciences: KAUMS; Intensive Care Unit: ICU; Coronary Care Unit: CCU; Operating room: OR; In vitro fertilization: IVF; Coronary artery bypass grafting: CABG; Complementary and alternative medicine: CAM; Coronavirus disease 2019: COVID-19; Severe acute respiratory syndrome coronavirus 2: SARS-CoV-2; World Health Organization: WHO.

Authors' contributions

All authors read and approved the final manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis.

Availability of data and materials

The data used in this study are available from the corresponding author on request.

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran (ethical approval code: IR.KAUMS.NUHEPM.REC.1404.004).

Consent for publication

By submitting this document, the authors declare their consent for the final accepted version of the manuscript to be considered for publication.

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