

Analysis of the Current Status of Research on Outpatient Physician-Patient Communication in China and Abroad over the Past Two Decades: A Comparison Based on CNKI and WOSCC

Zihan Xiong¹, Qimeng Sun², Sha Xie^{3*}

1. School of Pharmacy, Nanchang Medical University, Nanchang, Jiangxi, 330052, China

2. Department of Public Discipline Teaching, Nanchang Medical University, Nanchang, Jiangxi, 330052, China

3. School of Marxism, Nanchang Medical University, Nanchang, Jiangxi, 330052, China

*Corresponding author: Sha Xie, 2841148703@qq.com

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Abstract: Objective: Outpatient doctor–patient communication directly influences diagnostic efficiency and patient satisfaction. However, domestic research remains limited in scale and often lacks systematic communication models. This study compares domestic and international research hotspots and trends over the past two decades through bibliometric and keyword evolution analysis, with particular attention to the role of narrative medicine. Method Literature published between January 1st, 2005 and December 31st, 2024 was retrieved from China National Knowledge Infrastructure (CNKI) and Web of Science Core Collection (WOSCC). CiteSpace was employed for bibliometric visualization, and representative studies were reviewed to identify thematic foci and methodological features. **Results:** Over the past two decades, research on outpatient physician–patient communication has exhibited a progressive trend, evolving from “basic concepts” to “relationships/experiences,” and ultimately to “mechanistic deepening.” Internationally, a transition has been completed—shifting from mere “information transmission” toward a framework encompassing “patient-centered care, shared decision-making, and narrative medicine.” This evolution has resulted in a comprehensive system that integrates theory, practical tools, and education, and has led to the widespread adoption of qualitative and mixed-methods approaches. Although the volume of domestic publications has grown rapidly, research remains predominantly focused on identifying problems and proposing countermeasures, while the exploration of underlying mechanisms and practical application at the grassroots level remains relatively insufficient. **Conclusion:** Research on physician–patient communication is evolving from a focus on single issues toward multidimensional integration; however, disparities persist—both domestically and internationally—regarding the pace of development, theoretical depth, and methodological approaches. Moving forward, through the synergistic advancement of institutional frameworks, education, and digitalization—and by drawing upon established best practices—we should construct an outpatient communication system that is quantifiable, replicable, and capable of continuous optimization, thereby achieving a balance among efficiency, patient experience, and trust.

Keywords: Outpatient Care; Doctor–Patient Communication; Bibliometric Analysis; Shared Decision-Making; Narrative Medicine

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Against the backdrop of the ongoing advancement of healthcare reform and the hierarchical diagnosis and treatment system, outpatient settings-as the most common venues for medical care-find that the quality of physician-patient communication directly impacts patients' healthcare experiences as well as the prevention and management of medical disputes. Among the various health policies issued in recent years, China's national authorities have repeatedly emphasized the need to strengthen the humanistic literacy and communication skills of medical professionals. The Action Plan for Enhancing Medical Humanistic Care (2024-2027) explicitly states the objective to "strengthen medical humanistic care, foster mutual trust and communication between medical professionals and patients, and build harmonious doctor-patient relationships"^[1]. This policy orientation indicates that physician-patient communication has evolved from being viewed merely as an ancillary "soft skill" to becoming a core element for enhancing the quality of medical services and fostering harmonious physician-patient relationships; it also serves as a vital pillar in the construction of a system for medical humanistic care.

The outpatient environment is unique: the patient consultation time is short and the flow of people is large. Doctors need to complete disease collection, risk notification, decision-making, and follow-up arrangements within a limited time^[2]. Unlike inpatient care, outpatient communication - due to its unique characteristics - is more prone to issues such as information asymmetry, intense emotional reactions, and poor patient adherence. For instance, patients often struggle to articulate their conditions clearly due to their complexity, while physicians-constrained by time limitations and work pressures-frequently overlook patients' emotional states and differences in understanding; this dynamic often leads to the emergence of a "pseudo-consensus" between doctor and patient^[3-4]. This indicates that outpatient physician-patient communication is not merely a matter of verbal expression, but, more fundamentally, a matter of medical process design and institutional support.

Early international research focused primarily on patient satisfaction and trust; however, following the emergence of the concepts of shared decision-making and health literacy after 2000, the academic community gradually shifted its focus toward patient engagement, risk communication, and informed consent^[5-6]. Over the past decade, digital healthcare has gradually emerged, further expanding the scope of outpatient communication scenarios-such as online consultations, internet hospitals, electronic health record sharing, and AI-assisted documentation. This shift has transformed communication from a face-to-face, discrete event into a continuous, cross-platform interaction^[7]; however, it has also given rise to issues concerning privacy protection, the delineation of liability, and the digital divide. In contrast, although domestic research has rapidly followed suit, it consists largely of conceptual explorations and lacks cross-database comparisons as well as a systematic review of emerging themes^[8].

Based on this premise, this paper employs CiteSpace software to integrate data from the China National Knowledge Infrastructure (CNKI) and the Web of Science Core Collection (WOSCC), conducting a knowledge mapping analysis of research on outpatient physician-patient communication published between January 1, 2005, and December 31, 2024. The study aims to address the following questions: What are the primary research hotspots and evolutionary trajectories in the field of outpatient physician-patient communication? In what key aspects do domestic and international studies differ and converge? Furthermore, with a focus on outpatient practice, what potential avenues for improvement exist for future research?

1. Data Sources and Research Methods

The data for this study were derived from the China National Knowledge Infrastructure (CNKI) and the Web of Science Core Collection (WOSCC). The search timeframe was set from January 1, 2005, to December 31, 2024. Within the CNKI database, the search field was set to "Subject," and the search query used was: "Outpatient Physician-Patient Communication" OR "Outpatient Communication" OR "Physician-Patient Communication." A total of 4,923 relevant documents were retrieved. In the WOSCC database, an advanced search strategy was employed, with the search field set to "Topic" (TS)-thereby conducting the search within the scope of titles, abstracts, and keywords. The search query used was: "TS = ('outpatient doctor-patient communication' OR 'outpatient communication' OR 'doctor-patient communication')." The database scope was restricted to SCI-Expanded, SSCI, and A&HCI, and the language of the literature was limited to English. To enhance data quality, this study subjected the initial search results to manual screening and data cleaning, excluding non-academic literature-such as notices, news reports, meeting minutes, patents, and book reviews-and removing entries with low relevance to the research topic or those that were duplicates. Given the requirements of bibliometric analysis regarding sample size

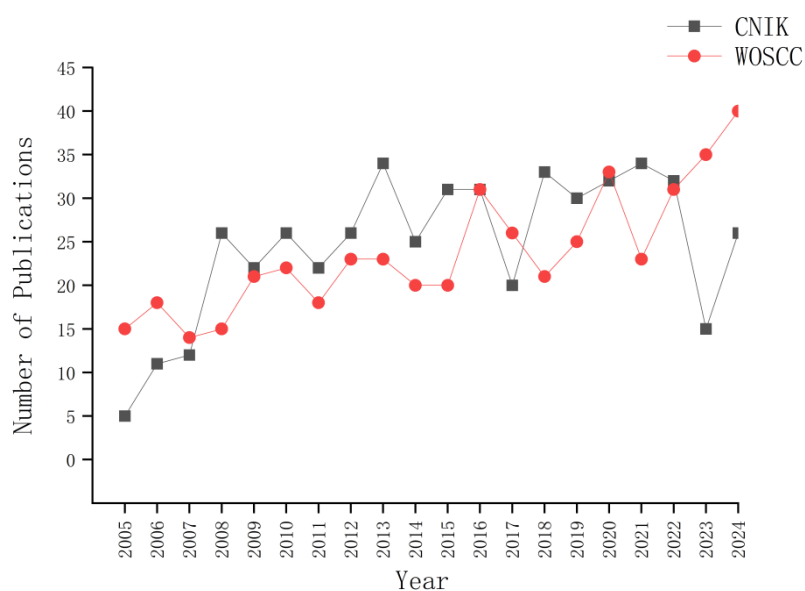
and structural stability, this study selected the top 500 documents-ranked by thematic relevance—from both the CNKI and WOSCC databases to serve as the final analytical sample. Previous studies have indicated that once a sample size reaches a certain magnitude (e.g., approximately 500 documents), the keyword co-occurrence network and clustering structure tend to stabilize, thereby reliably reflecting the knowledge structure and evolutionary trends of the research field^[9-10]. At the same time, the sample size aligns with common practices in existing bibliometric research. Furthermore, to clarify the regional composition of the “international” sample, this study conducted a statistical analysis of the distribution of authors’ countries within the literature included in the WOSCC. The results indicate that relevant research is primarily concentrated in North American and Western European countries, with the United States, the United Kingdom, Canada, and Australia accounting for a high proportion of publications, while African and certain Asian countries have a relatively low volume of publications. Therefore, the “foreign research” referred to in this thesis primarily reflects research trends dominated by the English-speaking academic system. The objects of comparison in this study are the knowledge structures and characteristics of thematic evolution within research on outpatient physician-patient communication across different academic systems, rather than a direct comparison of the performance of health care systems in different countries. Ultimately, CiteSpace software was employed to conduct keyword co-occurrence, burst detection, and cluster analyses on the included samples, with the aim of revealing research hotspots and their evolutionary trajectories.

2. Results and Discussion

2.1 Annual Publication Volume and National Distribution Characteristics

Between 2005 and 2008, the volume of publications related to outpatient physician-patient communication in the CNKI database was generally lower than that in the WOSCC database. From 2009 to 2013, the volume of domestic publications experienced a period of growth, reaching a peak in 2013 (34 articles), after which it exhibited a fluctuating trend. The volume of publications declined after 2022, dropping to 15 articles in 2023. In contrast, relevant research within the WOSCC database generally exhibits a trend of continuous growth; although annual fluctuations exist, the overall trajectory remains relatively stable, with 40 publications recorded in 2024. See Figure 1 for details.

Figure 1: Comparison of the Volume of Publications on Outpatient Physician-Patient Communication in China and Abroad Over the Past 20 Years



In terms of quantitative changes, the WOSCC sample exhibits a relatively continuous growth trajectory, whereas the CNKI sample displays periodic fluctuations. These disparities may be linked to shifts in the popularity of research topics, the level of policy attention, and the degree of interdisciplinary integration; however, publication volume alone is insufficient to directly assess differences in research maturity or quality. From the perspective of thematic evolution, the research content within the WOSCC sample has gradually expanded—shifting from an early focus primarily on information transmission and

patient satisfaction-to encompass areas such as communication skills training, patient engagement, shared decision-making, intercultural communication, and medical humanities education^[11]. In the CNKI sample, relevant studies tend to focus primarily on cross-sectional surveys and satisfaction assessments, while longitudinal intervention studies and evidence-based evaluations are relatively scarce^[12]. This difference is reflected primarily in divergent research paths and methodological orientations.

To further clarify the regional structure of the international sample, this study utilized CiteSpace to conduct a country-level collaboration network analysis of the 500 included English-language articles. The results indicate that the United States ranks first with 150 publications, followed by the Netherlands (44), the United Kingdom (35), Australia (25), Germany (24), and Italy (24) (see Table 1). Overall, the countries with the highest publication volumes are primarily concentrated in the North American and Western European regions.

Table 1. The Top 10 Countries Globally by Publication Volume in the Field of Outpatient Physician-Patient Communication

Rank	Nation	Number of Publications
1	America	150
2	Netherlands	44
3	Britain	35
4	Australia	25
5	Germany	24
6	Italy	24
7	Israel	16
8	Canada	12
9	Spain	12
10	France	8

This distribution pattern suggests that research on outpatient physician-patient communication within the WOSCC database is predominantly driven by the English-speaking academic sphere. Relevant countries embarked early on medical education, communication skills training, and evidence-based research; their research encompasses areas such as the development of communication skills assessment tools, the construction of shared decision-making models, and communication practices within cross-cultural contexts^[13-15]. It should be noted that disparities in publication volume do not necessarily reflect differences in research quality or institutional merit; rather, they tend to reflect factors such as the allocation of academic resources, database inclusion preferences, and linguistic advantages. In recent years, emerging themes-such as digital communication, AI-assisted documentation, and narrative medicine interventions-have appeared in WOSCC samples. For instance, some randomized controlled trials have demonstrated that blended communication skills training can enhance medical students' communication competence; meanwhile, artificial intelligence tools are being progressively applied in outpatient documentation and training settings, accompanied by ongoing discussions regarding privacy and ethical considerations^[16, 17]. Relevant studies within the CNKI sample have also begun to focus on digital healthcare and the cultivation of communication skills; however, the number of empirical intervention studies remains relatively limited. Overall, the analysis at this stage reveals differences across various academic systems in terms of publication trends, regional distribution, and research orientation. This difference provides the contextual basis for subsequent keyword evolution and topic clustering analysis.

2.2 Analysis of High-Productivity Authors and Institutions: Domestic and International Perspectives

Statistical analysis of institutional publication volumes reveals that research on outpatient physician-patient communication exhibits a certain degree of concentration at the institutional level. In the CNKI sample, Nanjing Medical University ranked first with 36 publications, followed by Sun Yat-sen University (13 articles) and Huazhong University of Science and Technology (12 articles) (see Table 2). Most relevant institutions conduct research within the framework of medical schools, with research themes primarily focusing on the cultivation of communication skills, medical humanities education, and the im-

provement of physician-patient relationships. This distributional characteristic indicates that domestic research on outpatient physician-patient communication is largely embedded within the context of medical education and clinical teaching reform. Among the WOSCC samples, the institutions with the highest publication volumes include Harvard University (31 papers), the University of California system (20 papers), and Maastricht University (14 papers), among others (see Table 2). Furthermore, a number of universities in North America and Europe also continue to participate in relevant research. Research topics span multiple areas, including shared decision-making, digital health communication, and the enhancement of patient satisfaction. The sustained involvement of institutions such as Maastricht University, Ohio University, and Case Western Reserve University demonstrates that international research in this field has evolved into a comprehensive system characterized by the interdisciplinary convergence of public health, psychology, and communication studies. This interdisciplinary nature leads its research to place greater emphasis on model construction and empirical verification, rather than being confined solely to the synthesis of clinical experience. It should be noted that the volume of publications produced by an institution primarily reflects the level of research resources and sustained team commitment; it does not directly indicate differences in research quality or impact. In terms of research thematic structure, a subset of institutions within the WOSCC sample exhibits characteristics of interdisciplinary engagement—specifically involving fields such as public health, psychology, and communication studies—whereas relevant research within the CNKI sample is more firmly grounded in medical education and the improvement of clinical practice. These divergences in disciplinary background and research approach provide essential context for interpreting the subsequent clustering structure of keywords.

Table 2. Top 10 Domestic and International Research Institutions by Publication Volume in the Field of Outpatient Physician-Patient Communication

Rank	Chinese Institutions	Number of Publications	Foreign Institutions	Number of Publications
1	Nanjing Medical University	36	Harvard University	31
2	Sun Yat-sen University	13	University of California	20
3	Huazhong University of Science and Technology	12	Maastricht University	14
4	Beijing University of Chinese Medicine	9	University of Ohio	14
5	Chinese Academy of Medical Sciences & Peking Union Medical College	8	Case Western Reserve University	11
6	China Medical University	7	Clalit Health Services in Israel	6
7	Beijing University	7	Bnai Zion Medical Center	6
8	capital medical university	7	Charite Universitätsmedizin Berlin	6
9	Sichuan Provincial People's Hospital	6	Netherlands Institute for Health Services Research	5
10	Fudan University	5	Radboud University Nijmegen	5

Following an analysis of the “Author” field within the included sample, the top 10 domestic and international authors by publication volume were identified (see Table 3). In the CNKI sample, the authors with the highest publication counts include Zhou Hongdan (4 articles), Zhao Tiefu (3 articles), Shang Weihong (3 articles), Ma Yongying (3 articles), and others. Overall, the disparity in publication volume among highly prolific domestic authors is relatively small; no distinct phenomenon of extreme concentration has yet emerged, and research within the field is characterized by a collaborative landscape involving the joint participation of numerous researchers. Within the WOSCC sample, the authors with the highest publication counts include Ben-Arve Eran (6 papers), Bensing Jozien Maria (3 papers), and Abel Gary (3 papers), among others. While a few individual authors demonstrate relatively high publication volumes, the presence of several scholars who consistently engage in research within this field indicates a distinct pattern of sustained research activity. In terms of the distribution structure of

authors, neither of the two sample sets exhibits a highly monopolistic pattern of core authors; however, certain differences exist regarding the maximum publication volume and the overall distribution morphology of the authors. In the WOSCC sample, the publication output of individual authors is relatively prominent, whereas the overall distribution in the CNKI sample is comparatively flatter. These differences may be attributed to factors such as research team size, collaboration patterns, database coverage scope, and the allocation of academic resources.

Table 3. The Top 10 Domestic and International Authors by Publication Volume in the Field of Outpatient Physician-Patient Communication

Rank	Chinese Author	Number of Publications	Non-Chinese Author	Number of Publications
1	Zhou Hongdan	4	Ben-arye Eran	6
2	Zhao Tiefu	3	Bensing Maria	3
3	Shang Weihong	3	Abel Gary	3
4	Ma Hanying	3	Xu Jia	2
5	Shao Jianwen	3	Gauchet Aurelie	2
6	Wang Jinfan	3	Foote Alison	2
7	Yu Kaihuan	2	Li Zhenzhu	2
8	Zhou Jingzhi	2	van dalen Jan	2
9	Zhang Hui	2	Grant Richard	2
10	Zhou Li	2	Hausmann Leslie	2

Structural characteristics at the author level provide complementary information for understanding the research network in this field. On the one hand, researchers who consistently engage with the same topic contribute to the establishment of stable research directions and the accumulation of methodologies; on the other hand, the involvement of multiple authors reflects the openness and diversity of the field. Future research could further integrate metrics such as author collaboration network density and betweenness centrality to investigate the impact of research collaboration structures on knowledge evolution.

3. Analysis of Research Hotspots and Trends

3.1 Research Hotspots

3.1.1 Hot Research Topics in China

Keywords serve as a core summary of the thematic content of a document; their high frequency of occurrence often reflects the research priorities and directions within a given field. This paper employs CiteSpace to conduct a co-word analysis of domestic literature concerning outpatient physician-patient communication; the top 10 entries, ranked in descending order of citation frequency, were selected to construct a distribution table of domestic research hotspots. For details, please refer to Table 4. The analysis results indicate that “医患沟通 (physician-patient communication)” is the absolute core keyword (cited 188 times; centrality: 1.15), followed by “医患关系 (physician-patient relationship)” (cited 73 times; centrality: 0.27) and “门诊 ((outpatient care)” (cited 49 times; centrality: 0.23). Centrality reflects a keyword’s mediating capacity to connect disparate topics within a knowledge network; the higher the centrality, the more central a position that topic occupies within the research structure. This result indicates that early domestic research focused primarily on conceptual definition and the exploration of relational structures. Subsequently, research gradually expanded to encompass themes such as “满意度 (satisfaction)”, “影响因素 (influencing factors),” and “对策 ((countermeasures).” Although citation counts and centrality remained relatively low, this shift reflects a transition in research focus from the mere description of relationships toward patient experience and intervention practices. At the same time, the emergence of keywords such as “医疗纠纷 (medical disputes)” and “医院管理 (hospital management)” suggests that the academic community has begun to focus on the institutional and legal issues stemming from communication imbalances. Overall, domestic research exhibits the following three characteristics: First, there is a high concentration of themes, and the core subject matter has not yet fully differentiated; second, while attention is paid to patient experience and communication effectiveness, there is a lack of quantitative analysis and systematic evaluation; and third, research addressing management and policy-level issues has not yet emerged as a prominent area of focus.

Table 4. Distribution of Hot Topics in the Top 10 Research Areas of Outpatient Physician-Patient Communication in China

Rank	Key words	Citation Count	Centrality
1	医患沟通	188	1.15
2	医患关系	73	0.27
3	门诊	49	0.23
4	满意度	22	0.09
5	影响因素	20	0.08
6	对策	18	0.03
7	门诊患者	18	0.01
8	原因	12	0.04
9	医疗纠纷	12	0.09
10	医院管理	12	0.04

3.1.2 Hot Research Topics Abroad

Based on the co-word analysis results generated by CiteSpace, the top 10 keywords were selected in descending order of citation frequency to construct a distribution table of research hotspots in the field of outpatient physician-patient communication abroad. For details, see Table 5. In terms of keyword structure, while retaining the core concept of “doctor-patient communication,” the WOSCC sample forms several interconnected clusters centered on terms such as “care,” “satisfaction,” and “health care,” suggesting a close link between the research topics and the contexts of patient experience and health services. The high frequency of terms such as “skills” and “information” reflects the sustained focus within this field on the development of communication competencies and information exchange mechanisms; the emergence of “primary care,” meanwhile, indicates that some research has extended into the context of primary health care.

Compared to the CNKI sample, the WOSCC keyword network exhibits distinct differences in thematic distribution. On the one hand, terms related to patient satisfaction and health service contexts account for a significant proportion of the high-frequency sequence; on the other hand, terms associated with communication skills and service systems have also entered the core structure. The aforementioned characteristics suggest that the international sample encompasses multiple levels of research content-including clinical communication practices, education and training, and service delivery systems-and exhibits a more diverse distribution of research themes. Spanning the fields of clinical practice, public health, and systems management, these studies demonstrate a trend toward interdisciplinary and systematic approaches. This expansion not only addresses the need to prioritize both medical quality and efficiency, but also offers a multidimensional perspective that serves as a valuable reference for research on outpatient physician-patient communication.

It should be noted that keyword frequency and centrality primarily reflect the level of research attention and the degree of thematic relevance; they do not directly evaluate research effectiveness or practical outcomes. The aforementioned analysis provides a foundation for subsequent keyword clustering and the comparison of evolutionary trends.

Table 5. Distribution of Hots Topics in the Top 10 International Research Areas on Outpatient Physician-Patient Communication

Rank	Key words	Citation Count	Centrality
1	doctor-patient communication/doctor patient communication	173	0.4
2	care	73	0.14
3	satisfaction	39	0.15
4	health care	35	0.11
5	impact	32	0.07
6	skills	30	0.21
7	information	29	0.13
8	primary care	26	0.10
9	communication	26	0.07
10	physicians	25	0.08

3.2 Research Directions

3.2.1 Research Directions in China

Utilizing CiteSpace software to extract and cluster high-frequency keywords can reveal the primary evolutionary paths and structural characteristics of research on outpatient physician-patient communication. By identifying and comparing clustered themes, one can delineate the research hotspots and shifting priorities across different stages within this field, thereby clarifying the core themes of academic interest and their evolutionary trends. This serves as a valuable reference for grasping the dynamics of the discipline's development and determining future research directions.

During the keyword analysis phase of this study, discrepancies involving Chinese and English terms, as well as symbols, were standardized. For instance, although “doctor-patient communication” and “doctor patient communication” appear as distinct forms within the database, they are semantically identical; consequently, they were consolidated into a single keyword for statistical analysis and clustering purposes, and are consistently represented as “doctor-patient communication” throughout the main text. At the same time, “primary care” and “primary health care” are consolidated and referred to collectively as “primary care” (Primary Health Care/General Practice). It should be noted that CiteSpace may, in the raw data, still list different word forms as distinct nodes, resulting in the appearance of duplicate labels with identical semantic meanings within the visualization. Regarding this phenomenon, our research team has explicitly acknowledged it in the methodology section and has semantically merged these instances during the statistical analysis and interpretation within the main text, thereby avoiding double-counting.

Figure 2: Keyword Clustering Map of Domestic Literature on Outpatient Physician-Patient Communication over the Past 20 Years



In the CiteSpace settings, the minimum occurrence threshold for keywords was set to ≥ 3 to ensure that high-frequency keywords are representative. By conducting a cluster analysis of the literature on outpatient physician-patient communication within the CNKI database, its primary evolutionary pathways can be delineated. Research hotspots have centered on themes such as “医患沟通 (physician-patient communication),” “医患关系 (physician-patient relations),” “门诊患者 (outpatients),” “门诊沟通 (outpatient communication),” and “医疗纠纷 (medical disputes).” Subsequently, themes such as “中小型医院 (small and medium-sized hospitals)” and “公共管理 (public administration)” gradually came into focus, while “共同决策 (collaborative design)” emerged as a new area of interest. Overall trends indicate that research has gradually expanded from an early focus on “沟通技巧 (communication skills)” to encompass “门诊管理 (outpatient management),” “服务质量 (service quality),” and “患者参与 (patient engagement),” emphasizing that communication is not merely the transmission of information, but a key avenue for building trust and enhancing satisfaction. Zhao et al.^[3] noted that effective communication is closely correlated with patient adherence and the patient experience, and plays a significant role in ameliorating physician-patient relations. Concur-

rently, research has begun to explore the impact of institutional and service-level factors on physician-patient communication, seeking to establish a multi-stakeholder shared decision-making model at the healthcare system level. It is evident from this that domestic research has traversed a trajectory ranging from identifying the root causes of problems to improving relationships, and subsequently to institutional building and capacity enhancement, thereby gradually evolving toward greater applicability and systematization. The foregoing analysis provides a conceptual map for understanding the developmental stages and expanding thematic scope of domestic research on outpatient physician-patient communication; for details, please refer to Figure 2.

3.2.2 Current Status of International Research

Research conducted abroad exhibits a broader scope of keyword clustering. A keyword cluster analysis performed on the WOSCC sample reveals several thematic clusters, encompassing topics such as “general practice,” “decision making,” “narrative medicine,” “medical education,” and “oncology” (see Figure 3). In terms of cluster structure, the research content—while centering on the core concept of “doctor-patient communication”—also extends to primary care settings, shared decision-making processes, medical education, and specific disease domains. Within the clustering network, “doctor-patient communication” occupies an intersectional position among multiple thematic clusters, appearing repeatedly throughout the map; this highlights its pivotal role within the overall structure. Clustering around this central node, various themes form several interconnected modules. For instance, “decision making” is linked to the theme of communication, reflecting the fact that some studies situate patient-physician communication within the framework of shared decision-making; meanwhile, the emergence of terms such as “general practice” and “oncology” indicates that the research contexts encompass both primary care settings and specific disease domains. Among these, “narrative medicine” also constitutes an independent or semi-independent cluster module. Relevant literature indicates that narrative medicine emphasizes listening to and understanding patients’ illness narratives, focusing on their life experiences and emotional expressions^[18]. In the outpatient setting, given the limited time available for consultations, communication typically revolves around diagnosis and treatment decisions. Some studies have attempted to integrate the principles of narrative medicine into outpatient practice, exploring their impact on communication quality and the dynamics of physician-patient interaction, and intersecting with the subject of shared decision-making^[19].

Furthermore, international studies emphasize the role of medical education in cultivating physician-patient communication skills, positing that systematic training during the medical student and residency stages can improve the quality of outpatient physician-patient communication at its source^[20]. Its interdisciplinary nature is also highly evident, encompassing psychology, sociology, and management, thereby reflecting the comprehensive and complex nature of the research. Overall, the WOSCC sample exhibits structural characteristics characterized by an extension from core communication themes into diverse medical contexts and educational settings. The aforementioned analysis provides a cartographic basis for comparing research structures between domestic and international studies (see Figure 3).

Figure 3. Keyword Cluster Map of International Literature on Outpatient Physician-Patient Communication over the Past 20 Years



3.2.3 Comparative Analysis

As revealed by keyword clustering, both domestic and international literature samples center on “医患沟通 /doctor-patient communication;” however, there are distinct differences in the directions of thematic extension. Domestic Chinese sample studies center on the nexus of “医患关系 (physician-patient relations)—门诊患者 (outpatients)—门诊沟通 (outpatient communication)—医疗服务 (medical services)—医疗纠纷 (medical disputes)” and extend outward to encompass “中小型医院 (small and medium-sized hospitals),” “公共管理 (public administration),” “临床能力培养 (clinical competence training),” and “协同设计 (collaborative design)”. This indicates that domestic research is largely situated within the specific contexts of outpatient settings and healthcare management, focusing on the interplay between communication issues and the institutional environment. Keyword clustering in studies based on international samples points toward “general practice,” “decision making,” “narrative medicine,” and “medical education,” extending further into specialized fields such as “oncology” and “surgery,” as well as the concept of “the continuum of partnership style.” This indicates a greater emphasis on patient-centered shared decision-making frameworks, utilizing narrative approaches and structured processes to enhance the quality of communication and foster trust. Furthermore, it integrates communication skills as a core competency into both medical education and continuing professional development, thereby establishing a tripartite advancement model encompassing clinical practice, the humanities, and education ^[21].

In comparison, domestic and international studies exhibit three key areas of difference and complementarity: First, regarding thematic orientation, domestic studies focus on relationship repair and service governance, whereas international studies emphasize the integration of decision science and the humanities. Second, in terms of application scenarios, domestic research centers primarily on outpatient workflows and institutional management (specifically, the governance of small-to-medium and public hospitals), whereas international research advances concurrently across both general and specialized medicine, embedding communication within disease pathways and continuity of care. Third, regarding research network structures, the theme of communication in international keyword networks demonstrates relatively strong connections with education and decision-making frameworks, whereas in domestic studies, it is more closely linked to themes related to management and service governance.

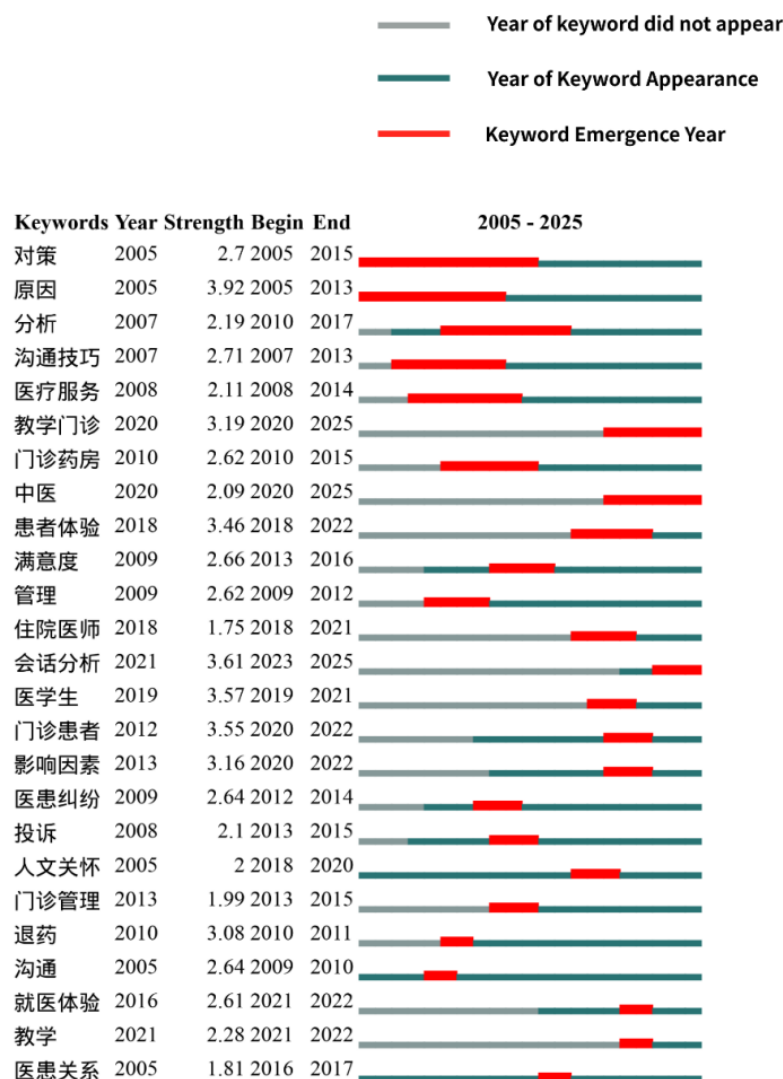
Overall, the domestic advantage lies in addressing pain points in outpatient care and prioritizing rapid implementation, whereas the international strength lies in leveraging shared decision-making and narrative medicine to establish a closed loop encompassing “theory, tools, and education.” Future research could introduce localized shared decision-making processes and narrative medicine interventions within the context of domestic outpatient settings. Concurrently, it could establish a competency-based system for communication training and assessment, thereby achieving an organic integration of practice-oriented approaches and theoretical foundations. This approach would not only sustain domestic achievements in process optimization and management mechanisms but also incorporate established international expertise regarding decision-making frameworks and capacity building, thereby steering outpatient physician-patient communication toward a sustainable, patient-centered trajectory ^[3]. It should be noted that research conducted domestically and abroad exhibits distinct characteristics regarding agenda setting and contextual selection; moreover, these differences may be influenced by factors such as healthcare system structures, academic traditions, and the scope of database coverage.

3.3 Evolution of Research Hotspots

Shifts in research hotspots often reflect the developmental stages of a discipline and the shifting focal points of scholarly interest. Keyword burst analysis is an effective method capable of revealing themes that have experienced a rapid surge in academic attention over a specific period, thereby aiding in the identification of frontier issues and research turning points within a given field. By dynamically tracking the emergence of keywords, one can clearly visualize the evolutionary trajectory of research on outpatient physician-patient communication—from its inception to its subsequent development—thereby revealing the processes of the rise, shifting, and deepening of research themes. Such analysis not only facilitates an understanding of the developmental trajectory of this field but also provides directional guidance for the expansion and innovation of future research.

3.3.1 Evolution of Research Hotspots in China

Figure 4: Evolution of Research Hotspots in Domestic Literature on Outpatient Physician-Patient Communication over the Past Two Decades



Using the period from January 1, 2005, to December 31, 2024, as the timeframe, a burst term analysis was conducted on domestic Chinese samples (see Figure 4). Burst intensity indicates the magnitude of the increase in a keyword’s co-occurrence frequency during a specific time interval, serving to characterize the periodic shifts in research attention. Based on the temporal distribution characteristics and thematic content of emergent terms—and to facilitate analysis—the research period has been divided into three distinct phases, determined by the timing of appearance and thematic relevance of the top 20 keywords ranked by emergence intensity. This division is predicated on the concentration of temporal occurrences and the relative clustering of themes; it does not, however, imply the existence of rigid boundaries between these phases. ① 2005–2015: Problem-Oriented and Foundational Exploration. Prominent keywords during this phase frequently involved terms such as “causes,” “communication,” and “hospital management.” Discussions primarily revolved around communication issues set against the backdrop of strained physician-patient relations, focusing on the root causes of conflicts and the context of hospital management. Relevant studies during this period predominantly employed empirical analysis and case-based discussion methodologies^[22]. ② 2015–2020: Institutional Development and Humanistic Care. Representative burst terms during this period included “patient experience” and “healthcare-seeking experience.” The emergence of such vocabulary signaled that research topics were beginning to encompass aspects such as patient perceptions and service delivery processes^[7]. Some studies employed a mixed-methods approach—combining questionnaire surveys with qualitative interviews—to explore the relationship between communication practices and the institutional environment. ③ 2020–2024: Educational Practice and Informatization

Development. Key emergent terms during this period—such as “教学 (teaching),” “中医 (Traditional Chinese Medicine),” and “人文关怀 (humanistic care)”—reflect an expansion of research hotspots into the realms of education and informatization. On one hand, patient-physician communication was gradually integrated into the medical education curriculum, with research focusing on communication competence and educational interventions; on the other hand, informatization and the optimization of healthcare service workflows emerged as new themes^[23-24]. The selection of keywords for the aforementioned stages was guided by the principle of representing the distinctive characteristics of each research phase, rather than relying solely on rankings based on emergence intensity. For instance, certain terms with higher intensity but weaker thematic relevance were not included in the main text. Furthermore, emergence analysis primarily reveals trends in the evolution of attention; it is therefore inappropriate to infer from it the hierarchical stages of theoretical development or the progressive relationships of value.

Note: “Year of Appearance” denotes the year in which the keyword first appeared in the research; “Start Year” denotes the year in which the keyword began to burst; and “End Year” denotes the year in which the keyword burst concluded.

In summary, domestic research in China has undergone a progressive evolution—spanning the stages of “conflicts and countermeasures,” “experiences and institutions,” and “education and informatization”—thereby gradually realizing a transition from empirical inquiry to theoretical construction and interdisciplinary integration. In terms of temporal distribution, domestic research in China exhibits a discernible trend of expansion-shifting from discussions on conflicts and countermeasures toward themes concerning patient experience, institutional issues, and education and informatization—though no absolute boundaries exist between these various stages.

3.3.2 Evolution of Research Hotspots Abroad

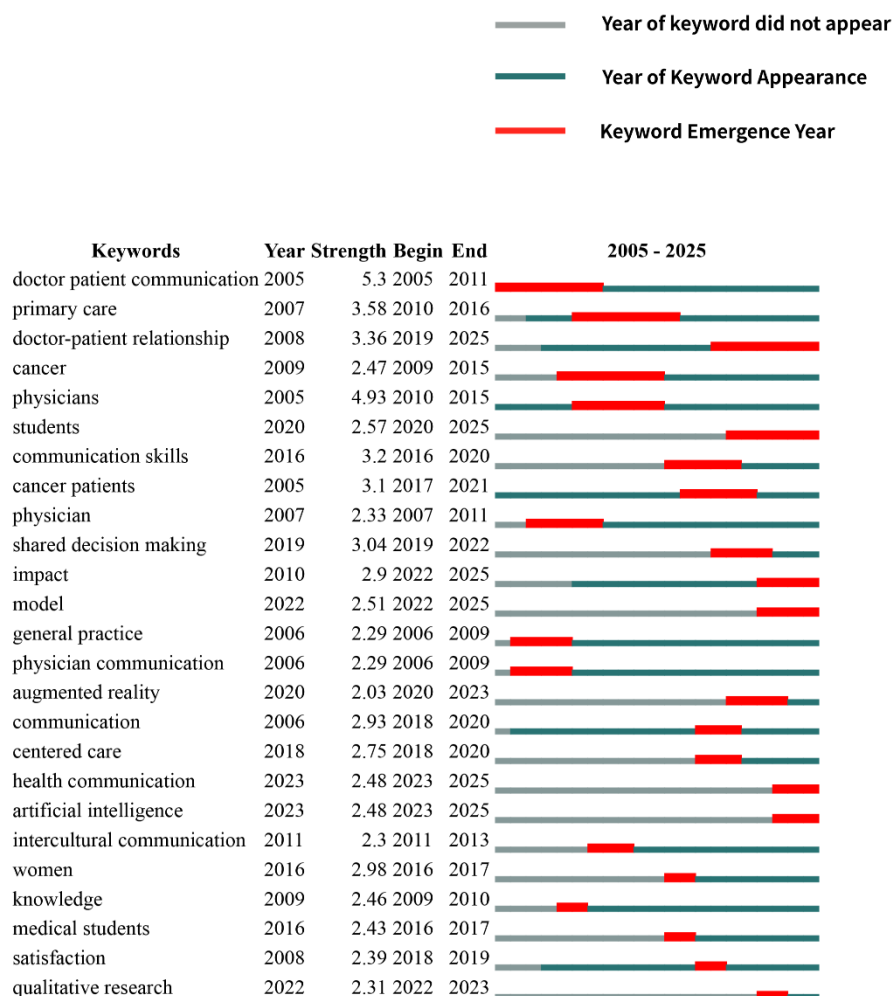
A keyword burst analysis of the WOSCC samples (see Figure 5) reveals that the evolution of keywords in the international research samples generally follows a progressive trajectory: moving from macro-level frameworks to specific scenarios, and subsequently to methodological innovations. It should be noted that burst terms reflect trends in increasing attention rather than directly indicating theoretical hierarchy or methodological maturity. To facilitate analysis, the sample has been divided into three time periods based on the temporal distribution characteristics of these burst terms. This division is based on the clustering of temporal data and does not imply the existence of distinct boundaries between the respective stages. ① From 2005 to 2010: Macro-level Focus and Preliminary Exploration. Key terms included “doctor-patient communication” and “intercultural communication.” Research during this period primarily focused on the fundamental role of communication in healthcare quality and patient safety, as well as the impact of cultural differences on doctor-patient communication, thereby establishing an academic consensus that positions communication as an independent subject of study. ② 2010-2018: Decision-Making Participation and Group Differences. Keywords included “communication skills,” “cancer patients,” and “medical students.” The research focused on the role of patients in decision-making, as well as the communication needs of specific groups—such as cancer patients—while also addressing communication skills training for medical students. ③ 2018-2024: Joint Decision-Making and Methodological Deepening. Key terms include “doctor-patient communication,” “questionnaire,” and “augmented reality,” indicating that research has advanced to the exploration of tools, technologies, and underlying mechanisms^[25]. See Figure 5 for details.

Overall, the WOSCC sample demonstrates shifts in the distribution of research contexts and topics across different time periods; discussions, initially centered on the subject of communication itself and cultural contexts, have gradually expanded to encompass topics such as participatory decision-making, specific patient populations, and technological tools. These changes primarily reflect an adjustment in the focal points of research attention; it would be inappropriate to infer from them any hierarchy of theoretical development or to judge the relative merits of specific models.

3.3.3 Summary

Based on a comprehensive analysis of keyword emergence and temporal distribution both within and outside China, it can be observed that samples from both categories consistently revolve around the theme of physician-patient communication across various stages; however, they exhibit differences in the directions of thematic expansion and their temporal distribution. First, regarding the distribution of topics in the early stages, emergent terms within the domestic Chinese sample were predominantly associated with doctor-patient conflicts and medical safety contexts, with research largely situated

Figure 5: Evolution of Research Hotspots in International Literature on Outpatient Physician-Patient Communication over the Past Two Decades



against the backdrop of real-world problems; conversely, the international sample addressed topics such as primary care and communication frameworks at an earlier stage. These disparities may be attributed to differences in healthcare system structures, academic traditions, and database coverage scopes. Second, in terms of temporal distribution, the timing of the emergence of certain themes—specifically those related to patient experience, education and training, and shared decision-making—differs between the two types of samples. In international samples, relevant keywords appeared relatively early on, whereas in domestic samples, they are concentrated within the last decade. It should be noted that the emergence time merely reflects changes in attention levels and is not synonymous with research depth or maturity. Third, regarding the analysis of thematic association structures, the international sample reveals distinct connections between the theme of communication and the fields of education, decision-making frameworks, and specific disease areas; concurrently, terms related to methodologies—such as questionnaires and technological tools—also feature prominently. In contrast, the domestic sample demonstrates stronger linkages with themes such as healthcare management, the institutional environment, and service workflows. The aforementioned differences primarily reflect variations in the research context and the background of the problem. From a discursive perspective, the strength of domestic research lies in its close alignment with outpatient settings and its capacity to rapidly address real-world pain points; however, it still requires strengthening in the areas of theoretical construction and interdisciplinary methodology. Driven by digitalization and AI, future research must integrate international experiences in shared decision-making and narrative medicine to explore more systematic and sustainable pathways for improving outpatient communication.

Overall, domestic and international studies exhibit distinct characteristics regarding agenda-setting and thematic association structures. These differences may be influenced by a multitude of factors, including the healthcare institutional environment, research traditions, and sample sources. Bibliometric results primarily reveal shifts in research focus and thematic evolution; therefore, it would be inappropriate to use them as a basis for making value judgments regarding theoretical maturity or practical efficacy.

3.4 Analysis of Frontier Trends in Keywords

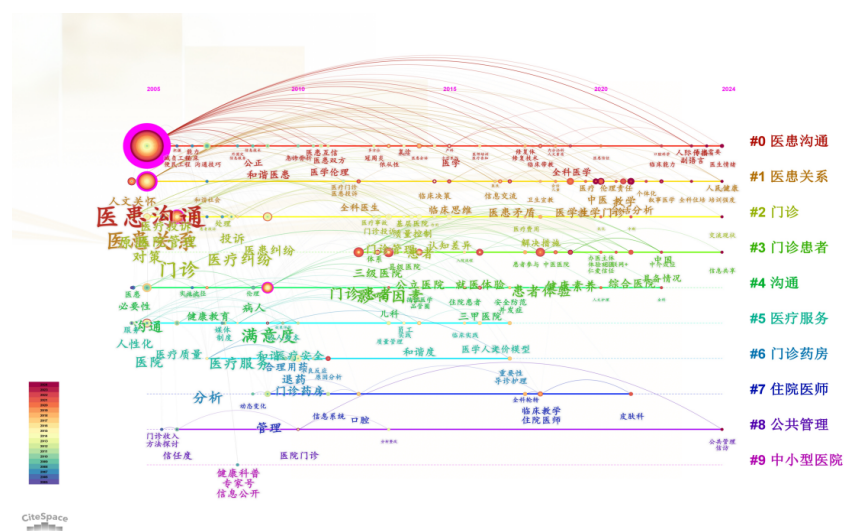
3.4.1 Analysis of Cutting-Edge Trends in Domestic Chinese Keywords

A timeline visualization analysis of keywords, conducted using CiteSpace software, reveals an evolutionary trend in the research hotspots concerning outpatient physician-patient communication within China. This trend shifts from the macro to the micro level, from a problem-oriented to a patient-centered approach, and from traditional topics to emerging interdisciplinary themes; it can be broadly categorized into three distinct stages. The timeline chart primarily illustrates the activity levels of keywords across various time intervals, serving as a tool to analyze the periodic shifts in research focus. It should be noted that while the distribution along the timeline reflects changes in thematic activity, it does not directly represent the hierarchical progression of theoretical development.

During the early stage (2005-2012), research centered on keywords such as “医患关系 ((physician-patient relationship))”, “医患沟通 ((physician-patient communication))”, “满意度 ((satisfaction))”, and “原因 ((causes))”. Studies largely revolved around communication issues within the context of physician-patient disputes, addressing the origins of conflicts and pathways for their mitigation^[26]. A subset of the literature explored topics such as communication techniques and the optimization of medical processes, thereby reflecting a characteristic driven by practical realities.

During the intermediate phase (2013–2018), keywords gradually expanded to encompass terms such as “门诊患者 (outpatients)”, “医疗服务 (medical services)”, and “医患关系 (physician-patient relations)”. Research began to focus on outpatient operational efficiency, service quality, and medical safety, reflecting a trend toward institutionalization and process standardization. This phase mirrors the transition in the medical model from a singular biomedical approach to a biopsychosocial model, shifting the research focus from conflict resolution to service improvement and relationship building. In the recent period (2019–2024), emerging keywords such as “humanistic care,” “patient experience,” “Traditional Chinese Medicine,” “small and medium-sized hospitals,” “clinical competence,” “collaborative design,” and “public administration” have appeared. This indicates that research is gradually transcending the scope of traditional communication studies, expanding into interdisciplinary and multi-level themes. Current research places greater emphasis on patient-centered philosophies, highlights cultural differences and the diversity of healthcare settings, and regards communication skills as a vital component of healthcare professionals’ professional competence. See Figure 6 for details.

Figure 6: A Knowledge Graph of Frontier Trends in Keywords for Outpatient Physician-Patient Communication Research in China over the Past Two Decades



Overall, domestic sample studies exhibit three major characteristic trends: First, a patient-centered approach is becoming increasingly prominent, with a focus on patient engagement and experience; second, the dimensions of research are continuously expanding, extending from individual-level communication to institutional development, humanistic medicine, and interdisciplinary collaboration; and third, application scenarios are diversifying, extending from outpatient settings to small and medium-sized hospitals, Traditional Chinese Medicine (TCM) diagnosis and treatment, and digitalised outpatient environments.

3.4.2 Analysis of Frontier Trends in International Keywords

Based on the CiteSpace timeline view (see Figure 7), the temporal distribution of keyword activity within the WOSCC sample from 2005 to 2024 can be observed. A timeline visualization reveals the phased evolutionary trajectory of research in this field abroad: exploration of fundamental communication models → shared decision-making and patient-centered care → narrative medicine and empathy research → digitalization and the expansion of diverse communication scenarios.

During the early stage (2005-2010), keywords primarily centered on terms such as “primary care,” “general practice,” and “doctor-patient relationship,” indicating that international scholars were focusing on doctor-patient communication within the context of primary healthcare settings. Research during this period emphasized the functional role of communication within basic clinical practice, thereby laying the groundwork for subsequent theoretical expansion. However, communication was still predominantly viewed as a unidirectional transmission of information by the physician.

During the intermediate phase (2010-2015), keywords such as “shared decision making,” “adherence,” and “health communication” gradually gained prominence, signaling that a patient-centered approach had emerged as a core theme. Research emphasized that physician-patient communication is not merely a means of information transmission, but rather a mechanism for empowering patients to participate in clinical decision-making; particularly in contexts involving long-term treatment-such as oncology and chronic disease management-communication was regarded as a pivotal factor in enhancing both the treatment experience and health outcomes.

During the Narrative and Empathy Phase (2015-2020), keywords such as “narrative medicine,” “trust,” and “communication skills” emerged, marking a shift in research focus from rational exchange toward an emphasis on individual patient stories and emotional expression^[18]. Research during this period highlighted how physicians can rebuild trust with patients through active listening and empathy, thereby moving beyond the traditional “inform-and-accept” model; consequently, communication became a vital avenue for repairing the physician-patient relationship and providing psychological support. The clustering of keywords such as “oncology,” “quality of life,” and “cancer patients” in the accompanying visualization indicates that the quality of life and psychological adjustment of cancer patients have become key areas of application for narrative-based communication.

During the Digitalization and Multi-Scenario Phase (2020-2024), emerging keywords such as “digital health communication,” “online services,” and “physician-gender” appeared, reflecting the shift of research into a stage characterized by multi-scenario applications and digital transformation. With the widespread adoption of telemedicine and e-health platforms, scholars have focused on how to maintain communication effectiveness and humanistic care in non-face-to-face settings-specifically addressing communication strategies in online consultations and video follow-ups, as well as the impact of gender and cultural differences on digital communication^[25]. See Figure 7 for details.

Overall, studies on physician-patient communication involving international samples exhibit three key characteristics: First, the scope has expanded beyond traditional face-to-face clinical encounters to encompass multi-scenario, multi-channel health communication. Second, the research focus has shifted from mere information transmission toward shared decision-making, narrative medicine, and empathy. Third, against the backdrop of healthcare digitalization and artificial intelligence, how to sustain physician-patient trust and interaction within emerging models of medical care has become an area of sustained attention. These trends hold significant implications for research on outpatient physician-patient communication in China: drawing upon insights from shared decision-making and narrative communication, future research should focus more closely on the adaptability of communication models and their localization within digital healthcare environments, with the aim of enhancing the patient experience and alleviating tensions between physicians and patients.

servicing as a pivotal breakthrough in the reform of China's healthcare system.

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Conflict of Interests

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