

# Construction and empirical analysis of nursing discipline system based on matrix management in Nanjing , China

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Volume 6 Issue 1, 2023

Article Information

Received date: 24/09/2023

Published date: 10/10/2023

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**\*Keywords:**

Nursing discipline system; Matrix management ; Empirical analysis ; Nursing; Nursing research; Nursing education

**Abstract**

**Objective:** Explore the classification management method of nursing disciplines, realize more accurate and reasonable positioning of each discipline, improve the level of refined management in hospitals of Nanjing, China, and achieve the best effect of discipline development combination.

**Methods:** In-depth analysis of the ideas and methodology of matrix design, combined with national medical policy, hospital development vision, and other subjective and objective factors that affect the development of nursing disciplines, combined analysis, to formulate a personalized nursing discipline system.

**Results:** Through the matrix management analysis, the discipline types of 19 disciplines were positioned, and on the basis of the analysis results, targeted adjustments were made in combination with the actual situation, and the development strategy of the nursing discipline system was determined and empirical research was carried out .

**Conclusion:** Based on the matrix management model can provide a scientific and reasonable evaluation of hospital discipline construction work for hospital nursing managers and discipline leaders, and provide an effective basis and methods for scientific decision-making.

**Introduction**

Discipline construction is one of the key contents of modern hospital management [1]. Nursing is an important part of medical and health careers. Under the new situation of the national economic restructuring and the medical and health services reform, the nursing discipline has entered a period of rapid development. In 2011, Nursing was approved as a first-level discipline by the Academic Degrees Office of the State Council [ 2 ], which ended the long-term status of nursing as a second-level discipline under clinical medicine; at present, the discipline construction of hospitals pays more attention to clinical medicine, and less attention is paid to the construction of nursing disciplines. Explore [ 3 ]. How to combine discipline construction with clinical nursing and promote the development of nursing discipline with scientific research results is a topic worth exploring.

Nursing discipline system refers to a tool that organizes and classifies the knowledge and theory of nursing discipline according to a certain framework and level, to facilitate education, research and practice. With the continuous development and expansion of the nursing discipline, the construction of the nursing discipline system has been paid more and more attention. This paper will use matrix management as the theoretical basis to discuss the construction method and significance of the nursing discipline system and conduct empirical analysis and its exploration effect.

## Build Method

### Theoretical basis

The matrix management model is an innovative management model that solves problems, manages, and provides services by establishing a system structure [ 4,5 ]. This model uses horizontal and vertical management methods to form horizontal project teams with members from different functional departments and then combines with the original vertical functional departments to build a matrix management system, using different knowledge structures and different professional skills among members to create Carry out work in a timely manner, strengthen effective communication among members of different dimensional structures, stimulate members' enthusiasm for work, improve work efficiency, and improve management and service quality. Matrix management mode The vertical system is constructed by the division of functions, and the horizontal system is constructed by the division of projects. The two systems interact to complete management and service tasks .

### Literature research method:

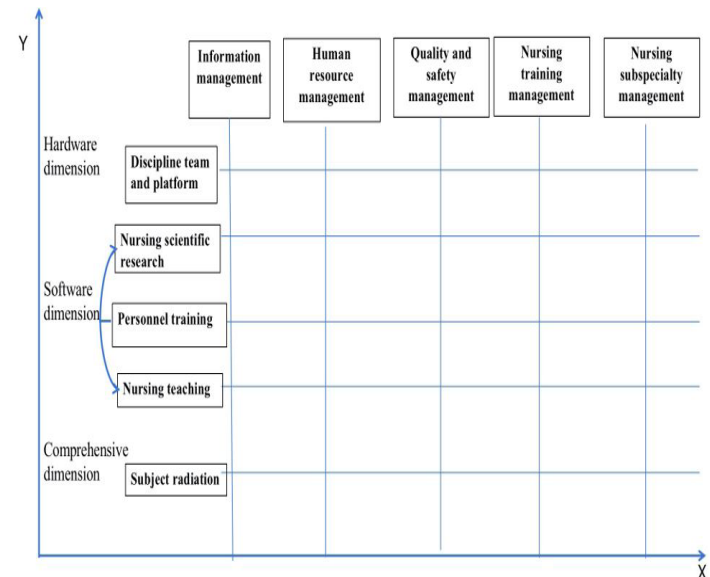
In Wanfang Data, China National Knowledge Network, and other databases, search keywords such as hospital discipline evaluation, evaluation indicators, and discipline construction, and focus on "Overview of Chinese Core Journals of Peking University" and "China Science and Technology Papers and Citation Database" The collected relevant literature is studied to understand the current situation, experience and shortcomings of domestic and foreign hospital nursing discipline evaluation research.

### Existing problems

After research, there are the following problems in the development of disciplines: the construction of foreign disciplines started earlier, mainly focusing on how to provide patients with good medical services and how to help medical institutions find problems [6] . Domestic discipline evaluation started relatively late, and the discipline evaluation carried out at the national, provincial, and municipal levels is mainly a horizontal comparison of a certain discipline, such as the national and provincial key specialist construction projects, which are not suitable for the construction of clinical nursing disciplines [7]. There is no uniform standard for the internal nursing discipline evaluation system of public hospitals, and different hospitals have their differences, but they all include talents, medical care, scientific research and teaching [8, 9, 10].

To solve the above problems, the nursing discipline system model refers to a tool that organizes and classifies the knowledge and theory of nursing disciplines according to a certain framework and level, so as to facilitate education,

research, and practice. The following is the framework for the construction of the nursing discipline system based on matrix management, as shown in Figure 1.



**Figure 1:** Schematic diagram of the nursing matrix management process.

Use X to represent the control intensity coefficient, then  $X=Y/Z$  (where Y is the control intensity of the department, and Z is the control intensity of the subject project). When X tends to infinity, the control intensity of functional division in the matrix structure is relatively strong, which means that the functional division in the library itself is very active, and tends to adopt a structure dominated by functional division of labor; when X tends to 0, that is, Z compares with Y When it tends to infinity, the matrix structure is dominated by discipline items; when  $X=1$ , it means that the matrix structure tends to be stable and coordinated, and the discipline item system and department system reach a balanced state, showing a benign development trend. It provides a clear framework and system for the education, research and practice of nursing discipline [ 11 ].

### Hehe

Using Wanfang database, China National Knowledge Network, VIP, China Biomedical Literature Database, Medline, PubMed, CINAHL, Ovid, Web of Science and other databases, using discipline construction, discipline development, discipline system, nursing management, hospital management, etc. as search terms, extensively consulted about hospital discipline construction In combination with the connotation, elements and main functions of the discipline construction of the hospital, a preliminary construction including discipline team and platform system, nursing scientific research system, personnel training system, nursing teaching system, and discipline radiation The hospital nursing discipline

**Table 1: Scoring system for nursing discipline construction (210 -point system ).**

Level 1 indicators	Secondary indicators	Level 3 indicators
Subject teams and platforms (50 points )	Subject leader (10 points )	Academic status
	Subject backbone (10 points )	Clinical ability
	Base and Platform (30 points )	Teaching and scientific research level
		Specialist nurse training base Key specialty construction Cultivate specialty construction Subspecialty construction
Nursing Research (50 points )	Subject direction (10 points )	Key Specialties
	Scientific research achievements (15 points )	Specialist Group
	Talent training (25 points )	Scientific research project paper patent Standards/Guidelines/Consensus/Specifications Scientific Research Achievement Award monograph/translation
Talent training (50 points )	Blue talent (10 points )	Study abroad clinical rotation Regular report and assessment
	Zeeland talent (10 points )	Exchange
	Reserve head nurse (10 points )	Expert introduction
	Specialist nurse (10 points )	Educational improvement
	Chinese medicine backbone talents (10 points )	Tutor situation
Nursing Teaching (30 points )	Nursing specialist training (5 points )	number of students Advanced study results
	Student Education (7 points )	intern teaching Postgraduate training
	Continuing Education (8 points )	Host continuing education programs Standardized nurse training Western and Chinese training Advanced continuing education in the hospital
	Teaching evaluation (5 points )	Teaching Quality
	Teaching achievements (5 points )	Awards for Teaching Activities Write teaching materials
Subject Radiation Management (30 points )	Quality of nursing service (10 points )	third degree charges Quality of Specialty Care In-Hospital Patient Satisfaction Satisfaction of the three parties outside the hospital
	Nursing Technology (10 points )	Specialty Nursing Core Technology TCM nursing characteristic therapy
	Radiation ability (10 points )	Nursing consultation Grassroots Incubation Project Medical alliance counterpart assistance Hold an academic conference Specialist nurse training course

**Table 2:** The empirical scores of the matrix indicators of each department's discipline construction.

Serial number	Department	The total score of discipline construction	$I_1$	$I_2$	$I_3$	$I_4$	$I_5$
1	Oncology	181 . 6	0.393	1.157	1.231	0.405	3.119
2	Urology	180 . 6	0.394	1.575	1.232	0.443	3.238
3	Nephrology	177	0.392	1.575	1.155	0.47	2.255
4	Emergency Department	175 . 3	0.39	1.015	0.839	0.251	2.504
5	Surgical Oncology	169 . 3	0.394	1.442	1.231	0.289	2.007
6	Acupuncture Rehabilitation Specialist	166 . 3	0.392	1.157	1.514	0.441	2.01
7	General Surgery	164 . 3	0.391	1.156	1.074	0.402	2.622
8	Cardiology	162 . 4	0.393	1.298	1.31	0.365	2.375
9	Orthopedics	162 . 4	0.321	1.297	0.915	0.176	3.1
10	Neurology	158.3	0.39	1.583	0.978	0.29	2.134
11	Geriatrics	158 . 6	0.391	1.162	1.034	0.287	1.641
12	Endocrinology	157 . 3	0.299	1.44	1.115	0.289	1.877
13	Respiratory	154 . 3	0.305	1.14	1.004	0.441	1.291
14	Digestive Endoscopy Center	153.2	0.289	1.011	1.033	0.276	0.915
15	Gynecology	151 . 4	0.21	1.046	1.014	0.298	0.821
16	ICU	143 . 7	0.176	0.871	1.065	0.274	1.025
17	Hematology	142 . 2	0.154	1.035	1.069	0.299	1.252
18	Infectious Diseases	131 . 8	0.14	1.234	1.113	0.347	1.672
19	Anorectal	123 . 9	0.123	1.030	1.097	0.287	1.289

**Note :**  $I_1 - I_5$  respectively represent the scores of the 5 experts participating in the subject evaluation

construction system of the five major systems of the management system. Table 1 is the preliminary construction system.

### Subject platform and construction

discipline matrix , the nursing discipline catalog is divided to form a "nursing matrix tree", including 1 first-level discipline, 34 second-level disciplines, and 57 specialties. Establish a discipline management structure of "discipline leader-discipline team-research direction" and integrate it with administrative management. The nursing unit of the hospital is divided into 34 departments, that is, 34 second-level disciplines. Each department selects and appoints a head nurse who is also a discipline leader. Optimize the layout of disciplines, divide the level of nursing disciplines, focus on the development of superior nursing disciplines, and provide financial support for discipline construction; each nursing discipline has clear discipline positioning and

goals, formulates discipline construction and development plans, and realizes the construction of precision nursing disciplines.

### Nursing research

Scientific research is an important driving force for the development of the discipline. Following the concept of "starting from clinical needs and aiming at solving clinical problems", we carry out nursing research work, promote the transformation of scientific research results, and improve the health outcomes of patients.

① Scientific research platform construction: establish a nursing research center, set up full-time and part-time scientific research nurse posts, and form a three-level nursing research system of "nursing research center-research team-research nurse". ② Establishment of scientific research teams: Each discipline establishes a scientific research team, starting from solving clinical nursing problems, guiding,

organizing, and carrying out nursing scientific research work in this discipline to improve the level of scientific research. ③ Concise subject direction: each subject team will condense the subject research direction according to the subject's characteristics, and form advantageous and characteristic projects.

### Talent training

Internal training and external introduction form a talent echelon of "discipline leaders- Zelan excellent talents - Qinglan reserve talents- Chinese medicine full-time therapists - specialized nurse talents". ① School leaders: Cultivate leading nursing talents with strong professional ability, profound academic attainments, creative thinking and pioneering consciousness. ② "Old, middle-aged and young" nursing talents relay action: innovatively carry out "reserve head nurse - Zelan excellent talents - Qinglan reserve talents - full-time and part-time therapists ), and pay attention to excellent nursing talents of all ages. ③ International nursing talents: Establish academic exchange relations with internationally renowned institutions, and select outstanding nurses to study for a master's degree in internationally renowned institutions. ④ Career development path: Plan career development paths for nursing staff from four aspects: clinical, teaching, scientific research, and management, and encourage the development of compound nurses. Talent development

### Nursing teaching and training

Pay attention to the construction of a nursing teaching and training systems oriented by post-competency. The combined professional title requirements of the N 1- N 4 energy level assessment adopt an online and offline education and training assessment mechanism. ① Hierarchical teaching management: including college education, post-graduation education, and continuing education. For different training objects, according to different educational backgrounds and needs, set corresponding training objectives, content, methods, and assessment requirements. ② "Double-qualified" teaching staff construction: strengthen the management of the teaching staff, clarify job requirements and responsibilities; set up a series of advanced teacher training courses, continuously improve the teaching ability of teachers, and cultivate high-level teachers who can not only give theoretical lectures but also have rich clinical experience. level faculty. ③ Multi-dimensional teaching quality evaluation: Various evaluation methods such as OSCE, mini clinical practice evaluation, and 360-degree evaluation feedback method are used to comprehensively evaluate the teaching effect, build a clinical nursing teaching quality evaluation index system, and improve teaching quality in multiple dimensions.

### Disciplinary Radiation Management

Discipline construction focuses on the construction of medical alliances and grassroots incubation projects. The scope of radiation includes grassroots to large-scale tertiary hospitals at home and abroad. Radiation exchanges include regional radiation leadership and domestic and foreign academic exchanges. ① Radiation leadership in the region: Relying on medical consortiums, with the help of the interconnected intelligent hierarchical diagnosis and treatment center platform, the professional knowledge of nursing disciplines and appropriate technology of traditional Chinese medicine are promoted to various grassroots hospitals and community service centers, to make grassroots nursing services. Increase capacity to meet people's health needs. ② Academic exchanges at home and abroad: Promote development through exchanges, invite nursing experts/nursing managers to our hospital to carry out academic exchanges through the "invite in, go out" foreign exchange method, and actively select outstanding nurses to participate in domestic and foreign academic conferences.

### Quality control

Establish a nursing discipline construction leading group, and a nursing discipline construction team, and establish a long-term operation management mechanism. The Nursing Discipline Construction Leading Group is responsible for formulating nursing discipline development plans and safeguard measures, managing, supervising, evaluating, and giving feedback on the nursing discipline construction, and is starting, In the final assessment and acceptance, 5 first-level indicators and 19 second-level indicators are evaluated, and the existing problems are continuously improved.

### Empirical analysis and evaluation

Since the establishment of the matrix management nursing discipline system, our hospital has built 19 key disciplines and 7 cultivation projects according to the discipline system construction in 5 aspects. Now we have carried out the evaluation and analysis of the discipline system for the key disciplines that have been built, and each application department applies as required , The hospital's research-oriented discipline construction management office will check and review the application materials of the department, and then the hospital will organize relevant experts to conduct a review, and finally the party committee of the hospital will make a decision. Qualified departments need to report on the discipline construction plan at the same time during the defense. In this study, 5 experts who have been engaged in clinical work and research for a long time were selected, and the field of expertise of the experts was matched with the major professional direction

of the evaluation discipline. The research fields of the 5 experts can involve the 19 departments participating in the evaluation. Great professional direction. Experts use the evaluation indicators to evaluate the disciplines according to the report content of each department.

### Empirical statistics and calculation methods

Summarize and sort out expert reviews, and conduct statistical analysis on reviews. Use Excel software to enter data, get the total score value of each expert for each item, use the analytic hierarchy process to assign values [ 12 ], and construct a judgment matrix, then a certain item is in the  $j$ th under the  $i$  second level index. The comprehensive scoring value in the third-level index is  $P_j = h_{ij} p_{ij}$  [ 13 ] .

### Outcome of Practice

According to the above calculation method, the empirical evaluation scores of 5 experts on the 19 departments participating in the discipline evaluation in all levels of indicators are obtained, as shown in Table 2.

### Thoughts and Suggestions

The development of the nursing discipline requires policy and financial support from relevant departments, and requires nursing managers to focus on the future and innovate management ideas. In accordance with the tasks and requirements of modern hospital discipline construction, scientific management is always the foundation, quality management is the core, and personnel training is the means. , with innovative research as the driving force, in-depth exploration in the aspects of nursing management informationization, clinical service humanization, nursing quality homogeneity, talent cultivation echelonization, discipline construction specialization, scientific research innovation integration, etc. [14, 15 , 16 ] .

Although this study has achieved certain results, it is still weak in the construction of nursing subspecialties and multidisciplinary collaboration, which still needs further exploration. The next step is to deepen the construction of nursing disciplines from the following aspects: (1) establish a comprehensive and life-cycle nursing service system centered on human health, and carry out in-depth chronic disease management and rapid recovery nursing services; (2) find Quasi-discipline positioning, clear construction goals. Discipline positioning must be fully integrated with the actual situation of the hospital, so as to know the enemy and yourself; (3) Grasp the main body of construction and build a good discipline team. First of all, we must adhere to

the people-oriented. Efforts are made to create a tolerant humanistic environment, a relaxed academic environment and a comfortable living environment. Second, pay attention to forming a reasonable structure. Generally speaking, a sound discipline team should have a support body including several discipline backbones and several assistants ; (4) Concentrate on discipline direction and make scientific choices. One is to go deep into the frontier of the discipline, have a forward-looking vision, and look at the world. Only advanced thinking and development direction can guarantee the leadership and competitiveness of the discipline. The second is to consider the feasibility of discipline construction; (5) Create an academic environment and provide hardware and software support. In terms of platform construction, the hospital should follow the principle of "unified construction, dedicated management, and shared use", adhere to a high starting point, high standard, and high level in construction, and ensure that it can provide cutting-edge, basic, and highly applicable high-level, It provides effective support for large, sophisticated, deep, and new subject research; in terms of management, it is managed by specialized institutions and personnel; in terms of use, it ensures versatility, sharing, and openness. In terms of soft environment construction, it is necessary to strengthen the academic atmosphere and strive to create a good humanistic environment to improve the soft power of academic competitiveness.

### Summary

Based on the matrix management theory of this study , the nursing discipline construction system is constructed , which plays a leading role in the construction of nursing disciplines in TCM hospitals, ensures the scientific and refined management of nursing disciplines , promotes the simultaneous development of clinical nursing , scientific research , and teaching , and contributes to the development of TCM nursing in China. Discipline construction provides a scientific basis . Discipline construction is a systematic and long-term work. There is no fixed model for the construction of nursing disciplines in general hospitals, and nursing managers need to implement comprehensive policies. In the wave of public hospital reform, facing the strategic goal of "2030 Healthy China" and the growing demand for medical care services of the people, the development of nursing disciplines is facing new challenges and opportunities. In the future, we will further explore the construction of subspecialty nursing .

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