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Vocational ability analysis and demand survey of nursing undergraduate talents in Zhejiang Province

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Abstract: *China's recent wave of scientific and technological revolution and comprehensive industry reform has led to a surge in public demand for advanced nursing services. To gain a thorough understanding of the current landscape of nursing talent, including their skill sets, job distribution, and identified challenges, a research initiative was undertaken involving employing entities, industry experts, and other stakeholders. This research aimed to elucidate the vocational competencies required and the specific job demands within the nursing profession. The findings aim to furnish a comprehensive, precise, and scientifically-grounded framework for the development of nursing education standards. Furthermore, they serve as a valuable point of reference for local governments, industrial enterprises, and educational institutions.*

Keywords: *Nursing talents, Professional ability, Demand research*

1. Introduction

The newly revised Vocational Education Law of the People's Republic of China was adopted during the 34th session of the Standing Committee of the 13th National People's Congress and took effect on May 1 of the same year. This marked the first comprehensive revision of the Law since its promulgation in 1996, expanding its content from five chapters and 40 articles to eight chapters and 69 articles. The promulgation of the revised Vocational Education Law serves as a robust legal foundation for establishing a modern vocational education system and fostering the sustainable growth of vocational education. As a leading institution in higher vocational education nationwide, it is imperative to anchor ourselves in the fundamental principles of educational classification, enabling us to align with the evolving landscape of vocational education in our country. This entails embracing the new developmental stage of vocational education, implementing progressive developmental concepts, constructing innovative developmental frameworks, and advancing the high-quality progression of vocational education. In this new era, vocational education embarks on a fresh historical chapter, entering a pivotal phase characterized by significant growth, enhancement, reform, and breakthroughs. The designation of vocational education as a distinct educational category has been elucidated, with a newfound emphasis on the advancement of undergraduate vocational education placed firmly on the national agenda.

Undergraduate vocational education must be strategically aligned with national imperatives, market dynamics, and technological advancements. It should closely track the iterative cycles of the economy and society, align with emerging occupational demands, and redefine knowledge, technical, and skill structures. Emphasis should be placed on theoretical comprehension, practical skills, and professional competencies requisite for vocational roles, with proficiency as the benchmark and practical training as a focal point. Efforts should be directed towards nurturing high-caliber technical professionals across industrial, technological, and occupational spectrums, serving the needs of a high-end, efficient, and intelligent economy. A hybrid model of education, integrating theoretical learning with practical experience, and prioritizing skill development is advocated. This model enhances the synergy between production and education within vocational institutions, upholding the foundational principles of "work-study integration," "production-education fusion," "industry-academia collaboration," and "multifaceted coordination. "Vocational education must uphold its distinctive characteristics of practicality, application orientation, and vocational specialization, thereby underscoring its unique advantages and indispensable role. Currently, undergraduate vocational education in our country is in its nascent stage, lacking established teaching standards and comprehensive training programs, particularly in the field of nursing. Efforts towards refining and standardizing these aspects are paramount for the advancement of vocational education.

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In the new era, China's economy experienced rapid growth, with constant changes in both the industrial and population structures. Consequently, the training structure of medical nursing personnel needed to adapt to these evolving circumstances [1]. Currently, undergraduate vocational education in China's nursing profession remains in its initial stages, lacking a comprehensive teaching standard and training plan. Therefore, conducting vocational ability analyses and researching market demands for nursing talents becomes crucial. Such efforts aid in optimizing the future training direction for nursing talents and establishing a nursing talent echelon that aligns with the evolving social and medical needs. The aim of this study was to innovate the training mode for undergraduate vocational education talents, issuing guiding opinions promptly to standardize the professional construction and talent training of nursing undergraduate vocational colleges and fostering various forms of cooperation.

2. Object and method

2.1 Object of study

2.1.1 Hospitals (institutions)

The practice units and brother colleges were commissioned to carry out research with the region, covering a total of 78 medical institutions in 11 regions of Zhejiang Province. Hospital admission criteria: ① The hospital grade is above the second class A. ② Volunteer to participate in and cooperate with related research work.

2.1.2 Expert interview

A total of 10 experts from industries, colleges, and hospitals (institutions) were selected to conduct online interviews by convenient sampling method. Expert inclusion criteria: ① The professional title of experts in nursing colleges and universities is above. ② Engaged in nursing education for 10 years or more. ③ Clinical nursing specialist title director nurse and above. ④ Engaged in clinical nursing for 10 years or more. ⑤ Volunteer to participate in and cooperate with related research work.

2.1.3 Graduates

A total of 1235 questionnaires were collected by convenience sampling, which selected internship units and sister colleges. The inclusion criteria of graduates: ① nursing students graduating from 2021-2023; ② the full-time degree is a bachelor's degree; ③ Volunteer to participate in and cooperate with relevant research work.

2.2 Methods

2.2.1 Research Content

2.2.1.1 Formulate the questionnaire for nursing job task and professional ability analysis through literature, data collection and analysis, expert consultation, and so on

The drafts of documents, including research proposals, surveys, and questionnaires, were meticulously prepared to investigate the demands for nursing professionals, job responsibilities, and professional competencies in our province's nursing sector in the new era. These drafts were developed through a comprehensive collection and collation of relevant literature sources such as the Health System Yearbooks (2012-2022), "Health Statistics of Zhejiang Province in 2022," "Development Plan for Nursing in Zhejiang Province (2017-2020)," "Outline of Nurse Practitioner Licensure Examination," "Outline of New Nurse Orientation Training," "Clinical Nursing Practice Guidelines," and "Teaching Standards for Nursing Majors."

After drafting the initial version, expert consultations were conducted using the Delphi method, and the results were analyzed. The research team discussed the expert opinions and ultimately formulated a survey questionnaire to investigate the demands for nursing professionals, job tasks, and professional competencies in the field.

2.2.1.2 To carry out the investigation and research on the current situation of the demand for nursing professionals in Zhejiang Province, the vocational ability of nursing staff, and the level of vocational ability required by vocational education and training students

A questionnaire was employed to investigate graduates of vocational colleges and employers in

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Zhejiang Province.1) The current demand for nursing talents was analyzed by the research group through big data statistics, based on the recruitment of nursing staff across various medical units in Zhejiang province.2) Interviews and an initial round of questionnaire surveys were conducted with hospital nursing backbone and senior teachers to comprehend the industry's latest demand for talent training and the cultivation of professional abilities.3) Following feedback from the initial round of analysis of nursing professional job tasks and vocational abilities, the "Nursing Professional Job Tasks and Vocational Abilities Analysis Questionnaire" was refined. A second round of questionnaire surveys was then carried out involving 78 medical industry employers in the province and nursing graduates from the past three years. This aimed to grasp the latest job tasks and vocational ability requirements from the perspectives of both industry frontline and frontline nursing personnel training. It also aimed to delineate the vocational ability levels expected of higher vocational education students and vocational education undergraduates.4) Drawing from the Teaching Standards of the Nursing Profession and existing research findings, the research group systematically analyzed professional job tasks and vocational abilities. They drafted the initial version of the "Nursing Professional Job Tasks and Vocational Abilities Analysis Table," followed by statistical analysis of the survey data to generate the final "Nursing Professional Job Tasks and Vocational Abilities Analysis Table."

2.2.2 Research methods

2.2.2.1 Questionnaire survey

Through literature review, Delphi expert consultation, presurveys, and other methodologies, the "Nursing Professional Job Task and Vocational Ability Analysis Form" was developed specifically for employers and graduates. Convenience sampling was employed, and the questionnaire was disseminated to participants, who completed it online.

2.2.2.2 Expert interview

This paper employed literature review and expert consultation to develop an interview framework pertaining to the professional competencies and requirements of nursing majors. A semi-structured interview approach was adopted to conduct interviews with 15 nursing experts and nursing education specialists, all holding senior professional designations. These interviews were conducted through face-to-face interactions as well as WeChat voice calls. The findings from the interviews were collated alongside the results of a questionnaire survey, which were then synthesized, refined, and supplemented.

3. Results

Through literature review and the formulation of hospital (institution) questionnaire, 78 hospitals (institution) were investigated in Zhejiang province. The regional distribution of hospitals was balanced, and the collected data were widely representative, which provided a solid foundation for the formulation of teaching standards in nursing colleges. A total of 78 questionnaires from medical institutions were effectively recovered in this survey, and the results are shown as follows.

In addition to the wide regional distribution, the survey conducted a proportional stratification survey according to the main workplaces of nursing talents at present. The levels of the surveyed hospitals covered all levels, including 41 tertiary hospitals, 16 secondary hospitals, 9 community health service centers and 11 old-age health service institutions. There were 48,177 nurses in 78 hospitals, with a minimum of 3 and a maximum of 2742, and the average number of nurses was 1220±571.84.

3.1 Analysis of professional ability of nursing talents in employers

3.1.1 Educational background of hospital nurses

The overall educational composition of nurses in 78 surveyed hospitals showed that nurses with master's degree or above accounted for 0.85%, those with bachelor's degree accounted for 73.00%, those with college (higher vocational) degree accounted for 22.90%, and those with secondary school degree or below accounted for 2.90%. The proportion of nurses' educational background is divided by hospital level, as shown in Table 1.

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Table 1: Shows the proportion of nurses' educational background in hospitals of different levels

Tiers	Academic Qualifications	Percentage (%)
Tertiary hospitals	Master's degree or above	0.95
	Undergrad	75.71
	Junior college (vocational)	21.76
	Technical secondary school and below	1.56
Secondary Hospital	Master's degree or above	0.13
	Undergrad	63.56
	Junior College (Higher vocational)	31.25
	Technical secondary school and below	5.06
Community Health Service centers	Master's degree or above	0.00
	Undergraduate course	57.30
	Junior College (higher vocational)	34.16
	Technical secondary school and below	8.54
Elderly care Services	Master's degree or above	0.00
	Undergraduate	14.73
	Junior College (higher vocational)	29.91
	Technical secondary school and below	55.36

3.1.2 Hospital information management system and artificial intelligence nursing project development

The informatization of hospitals, digital advancement, and artificial intelligence (AI) nursing initiatives significantly enhanced medical efficiency and boosted nursing satisfaction. Consequently, heightened demands were placed on the information literacy of nursing personnel. Currently, hospital information systems, digital upgrades, and AI nursing endeavors have been continuously refined and investigated. Hence, the integration of information technology with medical services is deemed essential.

3.1.3 The hospital's evaluation of clinical nurses in terms of the following abilities and qualities to meet the requirements of the post

The corresponding abilities and qualities required in clinical work vary, leading to variations in how well clinical nurses fulfill job requirements across different domains. While most graduates can generally meet these demands, there exist disparities in their proficiency in fundamental scientific research knowledge, conducting research, innovating, and engaging in entrepreneurial activities, as well as in their ability to address practical nursing issues through scientific inquiry. Furthermore, their aptitude in clinical nursing teaching, including the capacity to effectively instruct and lecture as competent interns, and their ability to provide education and consultation in health management, traditional Chinese medicine nursing, geriatric nursing, long-term care, rehabilitation promotion, and hospice care, requires further enhancement.

Beyond these essential abilities and qualities, employers also stipulate specific expectations regarding graduates' competence in evidence-based nursing, scientific research, and resilience to stress.

3.2 Research on nursing talents' needs

3.2.1 Recruitment situation of nurses in the hospital in recent 3 years

In the 78 surveyed hospitals, the number of nurses recruited in recent three years has been steadily increasing, specifically, the number of nurses with master's degree has increased year by year, the number of nurses with bachelor's degree and college degree has been relatively stable, and the number of nurses with technical secondary education has decreased year by year, as shown in Table 2.

Table 2: Nurse recruitment table of hospitals in recent 3 years

Educational level of Recruitment	2019	2020	2021	Total
Dr.	0	0	0	0
Master's	26	112	120	258
Undergrad	1290	1054	1157	3501
Junior College (Higher vocational)	1971	1481	1633	5085
Technical secondary school and below	253	228	191	672
Total	3540	2875	3101	9516

3.2.2 Demand for nursing positions in the hospital in the next 3 years

The recruitment demand for nurses in the 78 surveyed hospitals over the next three years resembled the educational levels of nurses recruited in the preceding three years. This indicates that the demand for nurses holding bachelor's degrees was the highest (87.18%), with demand for master's degrees being

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comparable to that for specialist degrees, while demand for vocational and secondary school education was relatively low (10.26%). Based on interviews conducted in 10 hospitals, the demand from employers for undergraduate nurses has been steadily increasing, particularly for those with robust learning abilities. This demand has shown a year-on-year rise.

3.2.3 The requirements of hospitals for undergraduates to obtain vocational qualification certificates

In addition to the requirement for nursing graduates to possess a nurse practicing qualification certificate, the second focal point pertained to the professional grade certificate in elderly care (23.08%), followed by the assessment certificate of elderly ability (20.51%). It was noted by employers that, besides the requisite vocational skills certificates, proficiency in English, demonstrated through CET-4 and CET-6 certificates, as well as proficiency in computer skills, held significant importance. Such proficiency not only facilitated a deeper comprehension of cutting-edge knowledge within the medical industry but also contributed to the advancement of clinical practice.

3.2.4 Course demand for digital development of nursing industry

The digital, networked, and intelligent evolution within the nursing industry necessitated an enhancement of the curriculum for nursing graduates. This augmentation aimed to equip them with the requisite knowledge and skills to navigate the landscape of clinical settings integrating intelligent triage, the utilization of smart auxiliary nursing devices, and the implementation of intelligent nursing health education systems. According to Table 3, the most sought-after courses included nursing informatics (89.74%), nursing big data analysis (83.33%), and the principles and applications of intelligent nursing instruments (58.97%). Furthermore, in response to the burgeoning digital transformation, employers advocated for additional elements within vocational education courses. For instance, nursing etiquette courses were urged to incorporate makeup and other relevant skills training. Emphasis was placed on fostering students' sense of professional vocation and fortifying their professional identity throughout the educational process.

Table 3: Shows the demand of courses for digital development of nursing industry

Courses	Percentage (%)
Nursing Informatics	89.74
Nursing big Data analysis	83.33
Principle and application of intelligent instrument for nursing	58.97
Computer Thinking and computer methodology	47.44
Medical Artificial intelligence	46.15
Biomedical Electronics	14.1
Advanced Mathematics	8.97
Other	1.28

3.3 Research on graduates' vocational ability and demand

3.3.1 Basic information of graduates

The survey involved 1235 graduates, comprising 87 males (7.04%) and 1148 females (92.96%). Among them, 865 (70.04%) were full-time undergraduates with a general high school education, 211 (17.09%) were full-time undergraduates with junior college education, 122 (9.88%) were full-time undergraduates with secondary vocational education, and 27 (2.19%) were full-time undergraduates with five-year junior high school education (including 5+2/3+4, etc.).Currently, 1140 (92.31%) graduates are employed in general hospitals, with 969 (78.46%) in tertiary hospitals, 160 (13.00%) in secondary hospitals, and 11 (0.89%) in primary hospitals. Additionally, 86 (6.96%) graduates work in specialized hospitals (such as maternal and child health care hospitals, traditional Chinese medicine hospitals, etc.), with 79 (6.40%) in tertiary hospitals, 6 in secondary hospitals, and 1 in primary hospitals. Three graduates are employed in public health service institutions, all within the Health and Health Commission. Moreover, three graduates work in community health service centers, one in elderly care institutions, and two in other institutions. Of the graduates, 768 (62.19%) come from public institutions, 36 (2.91%) were recruited under the contract system by the Health Bureau, 278 (22.5%) have direct labor contracts with hospitals, and 144 (11.66%) have agreements with labor service companies to work in hospitals. Additionally, there are 9 contract graduates working in private hospitals. Clinical nursing (98.14%) constitutes the majority of the 1235 graduates, with other positions including maternal and child nursing, community nursing, rehabilitation nursing, geriatric nursing, and miscellaneous roles.

A total of 1235 graduates participated in the survey, including 87 males (7.04%) and 1148 females (92.96%). There were 865 (70.04%) full-time undergraduates with general high school education, 211 (17.09%) full-time undergraduates with junior college education, 122 (9.88%) full-time undergraduates

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with secondary vocational education, and 27 (2.19%) full-time undergraduates with five-year junior high school education (including 5+2/3+4, etc.). At present, 1140 (92.31%) graduates are working in general hospitals, of which 969 (78.46%) are working in tertiary hospitals, 160 (13.00%) are working in secondary hospitals, and 11 (0.89%) are working in primary hospitals; 86 (69.60%) graduates are working in specialized hospitals (maternal and child health care hospitals, traditional Chinese medicine hospitals, etc.), of which 79 (6.40%) are in tertiary hospitals, 6 are in secondary hospitals, and 1 is in primary hospitals; Three graduates worked in public health service institutions, all working in the Health and Health Commission; Three graduates work in community health service centers, one graduate works in elderly care institutions, and two work in other institutions. There were 768 (62.19%) graduates of public institutions, 36 (29.1%) graduates of contract system recruited by the Health Bureau, 278 (22.5%) graduates of direct labor contracts with hospitals, 144 (11.66%) graduates of agreements with labor service companies who worked in hospitals. There were 9 contract graduates in private hospitals. Clinical nursing (98.14 percent) accounted for the most of the 1,235 graduates, while other positions included maternal and child nursing, community nursing, rehabilitation nursing, geriatric nursing, and other positions.

3.3.2 Status of graduates' vocational ability and quality evaluation

From the perspective of graduates, the achievement degree of vocational ability quality is evaluated through the multidimensional evaluation of professional quality, operational skills, knowledge, and skills, which indirectly reflects the emphasis of colleges in the training of undergraduate nursing talents. The self-evaluation of the achievement degree of operational skills and knowledge skills is high, and the complete achievement degree is basically more than 45%, and the non-standard is less than 1%, while the self-evaluation of the professional accomplishment degree is slightly insufficient, and the complete achievement evaluation is mostly below 40%.

3.3.3 In addition to the courses set by the school, there are additional courses to be added

To better adapt to clinical work, graduates believe that in addition to the courses provided by the university, nursing big data analysis (47.21%), principles and applications of nursing intelligent instruments (46.48%), nursing informatics (43.16%) and other courses should be added. The specific data are shown in Table 4.

Table 4: Schools need to add courses

Courses	Percentage (%)
Nursing Informatics	43.16
Nursing big Data analytics	47.21
Principle and application of nursing intelligent instrument	46.48
Computer thinking and computer methodology	27.37
Medical Artificial intelligence	35.38
Biomedical Electronics	13.20
Advanced Mathematics	11.58
Other	1.94

3.3.4 Graduates' opinions on the teaching of nursing professional courses

After clinical practice, graduates have different views on the teaching of nursing courses in school. Graduates think that the most important aspects of teaching should be improved include increasing practical training classes (60.57%), introducing clinical cases in teaching (53.93%), and increasing internship opportunities (40.49%). Please refer to Table 5 for specific data.

Table 5: Comments on the teaching of nursing courses

Areas for Improvement	Percentage (%)
When adding practical lessons	60.57
Introduce clinical cases when teaching	53.93
Increase your apprenticeship opportunities	40.49
Add tutoring for the nursing title qualification exam	31.42
Increase information-based teaching resources	30.12
Invite clinical front-line experts to teach	25.18
Organize nursing skills competitions	16.52
Other	0.89

3.3.5 Graduates consider the advantages of nursing with a bachelor's degree

From the perspective of graduates, the advantages of nurses with a bachelor's degree were evaluated. The results of the survey data showed that there were advantages in learning quality (55.3%), professional attitude (45.51%), scientific research and innovation ability (44.7%) and other aspects. Please refer to Table 6 for specific data.

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Table 6: Advantages of nurses with bachelor's degree

Advantages	Percentage (%)
Learning quality	55.30
Professional attitude	45.51
Scientific research and innovation capability	44.70
Clinical thinking ability	44.53
Interpersonal and communication skills	31.71
Clinical practice competence	31.66
Other	1.54

3.3.6 The graduates think that the unit is in the right place

After clinical practice and combined with the requirements of employers, graduates think that the most important aspects are comprehensive quality and comprehensive ability (76.36%), major and professional knowledge and ability (73.85%), social practice and internship and part-time work (40.32%), the third place of concern. See Table 7 for specific data.

Table 7: The most important aspect of the employer

Aspects preferred by Employers	Percentage (%)
Overall quality and overall ability	76.36
Major and professional knowledge and ability	73.85
Social practice, internships, and part-time jobs	40.32
Position related qualifications and certificates	27.61
The social reputation of the graduating institution	15.63
Foreign language and computer skills	10.69
School performance, rewards, and punishments	8.58
Personality and specialty description	6.88
Student origin and domicile	5.43
Personal basics such as age and appearance	4.94
Family background and social connections	2.11
Other	0.32

4. Conclusion

This study found that the nursing profession has a large number of positions, but the turnover rate is high, and the demand for undergraduate nursing graduates is the greatest. There are new changes in the employment requirements and employment positions of nursing majors, which put forward better requirements for the independent learning ability, scientific research and innovation ability and professional quality of nursing graduates. At the same time, the results of the expert interview especially found that in addition to the skills of clinical nursing posts to meet the standard, humanistic quality urgently needs to be improved. Therefore, it is necessary to increase the weight of humanities courses in nursing professional education.

5. Discussion

5.1 Training direction of professional ability of nursing talents

5.1.1 Pay equal attention to professional knowledge and skills training and professional quality education

Nursing experts and graduates agree that in addition to professional knowledge and skills training, professional quality education must be attached importance in nursing professional training, especially the cultivation and improvement of teamwork spirit, dedication, hard-working spirit, and humanistic quality. The research shows that the core of modern nursing lies in the integration of nursing science and humanistic care, which not only puts forward requirements for the comprehensive quality of nursing staff, but also puts forward new requirements for the understanding of the value and significance of life of nursing staff [2]. In the process of undergraduate education and training of nursing major, the practical education close to the clinic needs to be more perfect, and pay attention to the training of nursing students' clinical thinking ability and practical ability, so as to train nursing students who are more in line with clinical work[3].

It is suggested that all teachers devote themselves to studying the curriculum, teaching materials and teaching methods, and actively carry out the "three education" reform such as classroom teaching methods and evaluation methods, highlighting the teaching methods such as cooperative teaching, case teaching and bedside teaching, and advance the later teaching or extend it to the whole learning process

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in school.

5.1.2 The curriculum of nursing major is reasonable, but the weight of humanities and information courses should be strengthened

From the perspective of curriculum settings, although there were slight variations among nursing experts, graduates, and students, the general consensus remains largely uniform with minor deviations. It is widely acknowledged by industry experts that the nursing comprehensive practical training course holds paramount importance, thus recommending it as the core curriculum. Both graduates and current students indicated a lack of enthusiasm towards the Normal Human Anatomy course and perceived Biochemistry as less crucial. This underscores the need for bolstering guidance in these subjects in future teaching endeavors, concurrently aiding students in mastering study techniques. This calls for a concerted effort to enhance the guidance surrounding these courses in future teachings, aiming to aid students in mastering essential learning skills. Throughout the learning process, students exhibit a preference for practical courses, with case teaching garnering significant acclaim. The endorsement of school-enterprise cooperation by industry experts, particularly through the establishment of cooperation bases, is noteworthy. Research indicates that the integration of industry and education positively influences the advancement of the "new medical science" teaching mode and the cultivation of practical nursing talents[4].

Furthermore, the utilization and optimization of information systems should be emphasized in teaching to align with employers' requirements for nursing staff proficient in information system usage. Research underscores the critical role of information teaching and the application of information system instruction in enhancing the information literacy and capabilities of nursing talents. This, in turn, facilitates the seamless adaptation of fresh nursing students to the information-driven work environment, ultimately contributing to the provision of high-quality nursing professionals for clinical practice[5].

5.2 Demand analysis of nursing talents

5.2.1 Nursing professionals have a large contingent and a high turnover rate

The nursing profession is directly tied to human health, and the nursing team has been gradually expanding. This trend aligns with the data indicating an increase in the number of nursing staff in Zhejiang Province over the past three years. However, due to various factors such as work pressure, family commitments, salary concerns, and other issues, the stability of the nursing team is not robust, leading to a high turnover rate. These findings corroborate previous research and further demonstrate that the turnover rate among non-staff nurses was notably high, reaching 72%, which is significantly higher than that among staff nurses[6].Given the current scenario regarding the distribution of nursing human resources in our province, it is noteworthy that the number of undergraduate students is gradually decreasing. Nevertheless, according to projections from the nursing human resources forecasting model, the number of registered nurses is anticipated to reach 6.9 million by 2030. Consequently, there is a pressing need to bolster the training focused on fostering professional recognition among nursing students[7].

It is recommended that during their tenure in colleges and universities, efforts should be intensified to enhance students' understanding of professional cognition, professional ethics, and other pertinent knowledge domains. Additionally, there should be a concerted emphasis on improving vocational skills, fostering a conducive professional environment, and deepening students' comprehension of the nursing profession, thereby promoting stability in their professional outlook.

5.2.2 New changes have taken place in the employment requirements and employment positions of nursing majors

The survey reveals that the current health industry underwent rapid development, leading to the emergence of a new health industry chain and the creation of numerous new health positions. The primary employment direction for higher vocational nursing has shifted, while students' anticipated employment positions remain unchanged. Hence, proactive planning, thematic education, career mapping, academic advancement, and embracing training in new post knowledge, skills, and literacy become imperative.

It is recommended to rigorously study the guidelines and policies issued by the state, deepen engagements with industry enterprises, and augment students' practical experience hours. This can be achieved through various means such as visits, reflections, internships, and inviting industry experts to conduct lectures. Such initiatives aim to expedite students' understanding of the evolving trends and employment landscape within the nursing industry, encouraging a shift in employment mindset and

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fostering enhanced career planning to elevate employment satisfaction.

The rapid advancement of information technology has imposed new demands on vocational proficiency. Integrating information technology instruction into the training curriculum is imperative to enable students to swiftly acclimate to digital medical technologies such as information systems upon entering the workforce. Furthermore, augmenting the personnel training program with skill development modules facilitates the pursuit of 1+X vocational skill level certificates alongside academic certifications, thereby enabling the acquisition of novel competencies and the exploration of alternative employment pathways.

In summary, this demand survey has yielded fresh insights into nursing post evolution, curriculum design, vocational knowledge, skill acquisition, and professional competence. These findings hold significant implications for course design and instructional methodologies, furnishing robust support and a foundation for the refinement of nursing professional training programs.

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