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Current Status and Reflections on the Cultivation of Research Capabilities in Master of Nursing Students with a Professional Degree in China

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Abstract: ***This paper takes Youjiang Medical College for Nationalities, located in an underdeveloped ethnic minority region in China, as the research object to explore the current status and challenges of cultivating research capabilities of nursing master's degree students in my country. Since its establishment in 2010, the nursing master's degree aims to cultivate senior clinical nursing experts with solid theoretical knowledge and clinical research skills. However, there are some problems, including over-emphasis on clinical ability and neglect of research, high reliance on mentor guidance, insufficient research funding, limited opportunities for interdisciplinary cooperation, and poor application of research results. This paper proposes strategies to address these challenges, such as strengthening research course training and academic exchanges, increasing research practice, exploring the system of clinical second mentors and mentor groups, increasing research funding, and drawing on international best practices for curriculum setting. This paper advocates a more comprehensive approach to nursing education that combines research with clinical practice, reflects the latest advances in healthcare, and cultivates a new generation of nursing leaders who can drive change. The paper concludes that improving the research capabilities of nursing graduate students is a complex process that requires a multi-pronged approach, and urges dialogue and action among stakeholders to strengthen support and resources for nursing master's degree students.***

Keywords: Nursing Master's Degree Students, Research Capabilities, Professional Degree.

1. Introduction

The landscape of healthcare is evolving at a rapid pace, with advancements in technology, an increasing emphasis on evidence-based practice, and a growing need for specialized knowledge within the nursing profession [1]. In this context, the cultivation of research capabilities among nursing students is not merely an academic exercise but a critical step towards enhancing patient care and fostering innovation within the field [2]. The cultivation of Master of Nursing students with a professional degree in China began in 2010, with the approval of the nursing master's professional degree by the 27th Academic Degrees Committee of the State Council. This marked the beginning of the training of advanced clinical nursing specialists. The goal is to cultivate high-level, applied, and specialized nursing talents who love the nursing profession, possess solid theoretical knowledge, and have certain clinical research capabilities, capable of directly participating in clinical nursing practice [3]. By the end of 2022, 111 universities nationwide admitted nursing master's degree students. The Nursing Master's Professional Degree Graduate Education Steering Committee issued the "Guidelines for the Training Program of Nursing Master's Professional Degree Graduates (Trial)" in 2011, which set requirements for the cultivation of research capabilities in nursing master's degree students. However, the plan is generally described in broad terms, and the development levels of universities in China vary, leading to different quality requirements for nursing professional talent cultivation, which in turn results in varying requirements for graduate education, teaching, and research.

Youjiang Medical University for Nationalities is located in the Guangxi Zhuang Autonomous Region, a relatively economically and culturally underdeveloped ethnic minority area in the southwest border of China. It obtained the authorization point for the nursing master's professional degree in 2018 and enrolled the first batch of nursing professional master's students in 2019, who have now successfully completed their training and successfully graduated. However, during the process, there are many issues in teaching, research, and clinical practice that restrict the improvement of research capabilities in nursing master's degree students. This paper sorts out the problems and dilemmas in the cultivation of the capabilities to conduct scientific research of nursing master's degree students and reflects on measures to improve it. This paper takes Youjiang Medical University for Nationalities as a case study to delineate the problems and dilemmas encountered in the cultivation of research capabilities among nursing master's degree students, especially within the context of ethnic minority regions in China. Drawing on best practices at home and abroad, this article proposes strategies to enhance the scientific research capabilities of nursing master's students, including scientific research course training, academic exchanges, scientific research practice, exploration of the second clinical mentor and mentor group system, scientific research funding, and expansion and improvement of incentive mechanisms. It advocates a more comprehensive approach to nursing education that more seamlessly integrates scientific research and clinical practice, reflects the latest advances in health care, and prepares nursing professionals to play a leading role in the era of medical reform.

2. Methods

The present study employs a mixed-methods systematic review approach to assess the current status and reflections on the cultivation of research capabilities in Master of Nursing students with a professional degree in China [4]. It allows for an examination of the existing literature, combining both quantitative and qualitative data to provide a holistic view of

the educational landscape for nursing professionals in China [5].

2.1 Literature Search Strategy

A comprehensive search strategy was developed to identify relevant literature published between 1998 and 2019. The search was conducted across multiple databases, including PubMed, PsycINFO, Web of Science, ProQuest's Dissertations database, and ERIC [6]. The search terms were designed to capture studies related to nursing education, research capabilities, and professional degrees. The search terms included a combination of keywords related to "nursing education," "research capabilities," "professional degree," "Master of Nursing," and "China". The search was not limited to a specific time period, ensuring a comprehensive capture of relevant literature.

2.2 Eligibility Criteria

The review included studies that focused on the cultivation of research capabilities in Master of Nursing students in China. Studies were eligible if they provided insights into the educational programs, challenges, and strategies related to enhance research skills among nursing students. Both empirical and theoretical contributions were considered, provided they offered substantive insights into the nursing education system in China.

2.3 Study Selection and Data Extraction

The initial screening of titles and abstracts was conducted by two independent reviewers to identify potentially relevant studies. Full-text articles were retrieved for those that met the inclusion criteria and were assessed in detail. A standardized data extraction form was used to collect information on publication year, research design, sample size, main findings, and the implications for nursing education. Disagreements between reviewers were resolved through consensus discussions.

2.4 Synthesis of Findings

The synthesis of findings followed a metasummary approach, which involved thematically organizing the extracted data according to the key themes and categories emerging from the literature. This process allowed for the identification of patterns, commonalities, and divergences across the included studies, providing a nuanced understanding of the various dimensions of research capability cultivation in nursing education.

3. Results

3.1 Problems and Dilemmas in the Cultivation of Research Capabilities of Master of Nursing students

3.1.1 Emphasis on Clinical Abilities at the Expense of Research Awareness and Capabilities

In the cultivation of Master of Nursing students, there is a pronounced emphasis on the development of clinical theory and skills, which often overshadows the equally important aspect of research capabilities [7]. This tendency is evident in the academic career structure, where nursing students dedicate the majority of their study time to clinical practice training, with this component constituting over half of their total study period. This focus on clinical proficiency, while crucial for producing competent nursing professionals, inadvertently marginalizes the development of research awareness and capabilities.

The consequence of this imbalance is a significant gap in the research preparedness of nursing graduates. Students are often not exposed to the rigors of research methodology, critical analysis, and evidence-based practice to the extent necessary to foster a robust research culture within the nursing profession [8]. This lack of exposure can lead to a limited understanding of how research informs and improves clinical practices, ultimately hindering the advancement of the nursing discipline. Moreover, the prioritization of clinical skills can result in a narrow educational experience that fails to prepare students for the diverse roles that nursing professionals may undertake, including those that require a strong research foundation [9]. This oversight can also lead to a lack of confidence among students when faced with research tasks, as they may not have had sufficient opportunities to develop and refine these skills during their academic training [10].

The underemphasis on research capabilities can also contribute to a broader issue within the nursing profession, where the value of research in driving innovation and improving patient outcomes is not fully recognized. This can result in a missed opportunity for nursing professionals to contribute to the scientific discourse and evidence base that shapes the future of healthcare. In essence, the current educational paradigm for nursing master's degree students in China presents a dilemma where the intensive focus on clinical abilities, while beneficial for immediate patient care, may inadvertently stunt the growth of research capabilities. This situation poses a challenge to the development of a nursing workforce that is equipped to engage with the complexities of modern healthcare, where research acumen is as critical as clinical expertise.

3.1.2 High Dependence on Supervisors but Lack of Guidance and Support

The cultivation of research capabilities among nursing master's degree students is significantly hindered by a high dependency on supervisors coupled with a lack of substantial guidance and support. This dynamic is particularly problematic given the dual roles that many supervisors must fulfill, often juggling administrative duties and teaching responsibilities alongside their mentoring roles [11]. As a result, nursing students frequently find themselves without the necessary academic direction and research support, leading to a detrimental impact on their research development and academic growth.

The nursing profession's unique demands mean that supervisors, who are often also practicing nurses or hold significant positions within the healthcare system, may struggle to allocate adequate time and attention to their mentoring responsibilities. This situation is exacerbated by

the fact that nursing master's degree students are typically expected to navigate complex research methodologies and academic expectations with limited autonomy, leading to a strong dependency on their supervisors for guidance. Research has highlighted this issue, with Yin Xiaomeng et al.'s study indicating that nursing master's degree students suffer from insufficient self-role recognition and professional recognition, coupled with an overreliance on supervisors. Moreover, the absence of robust support systems can lead to increased stress and reduced confidence in students' abilities to complete their research successfully. This situation can also contribute to a higher risk of attrition, with students either delaying their graduation or failing to complete their degrees.

3.1.3 Lack of Research Funding

A critical dilemma in the cultivation of research capabilities among nursing master's degree students is the persistent lack of adequate research funding. This issue is particularly pronounced given the resource-intensive nature of research activities, which often demand significant human, material, and financial investments [12]. Nursing students, as part of their academic requirements, engage in clinical research or survey research that goes beyond the confines of theoretical studies. These research endeavors frequently necessitate funding to cover various expenses, including but not limited to paper fees, academic exchange fees, and material printing costs [13].

The financial support provided by educational institutions for graduate students' research activities is often insufficient to meet these demands. Consequently, nursing master's degree students are left to rely heavily on their supervisors' research funds, which are already stretched thin due to the competitive nature of research funding and the multitude of projects they support. In some cases, students must seek out their own funding through various programs, placing an additional burden on them to balance their academic responsibilities with the task of securing financial resources [14].

When supervisors possess limited ongoing research funds and students are unsuccessful in securing external funding, the situation becomes dire. The scarcity of research funds can lead to a halt in essential research activities, impeding the progress of scientific inquiry and stifling the development of research capabilities among nursing students [15]. This financial constraint not only affects the quality and scope of research projects but also undermines the students' ability to fully engage in the research process, thereby limiting their exposure to critical research experiences.

The lack of funding also has a ripple effect on the overall research output of nursing programs. With insufficient resources, students may be unable to participate in important academic conferences, present their findings, or publish their work in reputable journals. Thus, it is an issue that affects the research capabilities of nursing master's degree students at multiple levels. It not only hinders their immediate research activities but also has long-term implications for their academic and professional growth.

3.1.4 Lack of Research Collaboration Opportunities

The cultivation of research capabilities in nursing master's degree students is significantly impeded by a lack of opportunities for interdisciplinary research collaboration. In an era where complex health challenges demand integrated solutions, the ability to collaborate across different fields is crucial. However, the current educational paradigm for nursing master's degree students often falls short in this regard.

The course structure within the nursing discipline is often siloed, with limited integration of cooperative teaching with other disciplines [16]. This isolation is evident in the curriculum design, which frequently mirrors undergraduate education in content and fails to introduce cutting-edge topics that could foster innovative research ideas [17]. The teaching time allocated to master's level courses is also insufficient, which, coupled with the lack of interdisciplinary exposure, results in a missed opportunity to develop collaborative research skills.

Moreover, the sequencing of the academic program, which typically transitions directly from classroom-based learning to clinical practice, further limits opportunities for research collaboration. Students often find themselves immersed in the demands of clinical work, leaving little time or energy to engage in research partnerships with peers from other disciplines. This situation is exacerbated by the intensity and responsibilities associated with clinical nursing, which can overshadow the research component of their degree.

The absence of interdisciplinary research collaboration opportunities is particularly detrimental given the multifaceted nature of healthcare. Nursing research can benefit greatly from insights and methodologies drawn from fields such as public health, psychology, sociology, and biostatistics. However, without structured opportunities to engage in such collaborations, nursing students are denied the chance to broaden their research perspectives and develop a more comprehensive understanding of the factors influencing health and illness [18]. This lack of collaboration also impacts the richness and relevance of the research produced by nursing students. Interdisciplinary research has the potential to yield more robust findings and innovative solutions to complex healthcare problems. By not fostering an environment that encourages and facilitates such collaborations, nursing education may be inadvertently contributing to a narrower, less impactful research output.

3.1.5 Lack of Transformation and Application of Research Results

A persistent challenge in the cultivation of research capabilities among nursing master's degree students is the difficulty in translating research outcomes into practical applications. Despite the generation of numerous scientific and technological inventions by these students, some of which have even been patented, there remains a significant gap in the processes and platforms that facilitate the transition of these research findings from academia to real-world practice. The current training framework for nursing master's degree students often does not include structured mechanisms for the commercialization or practical application of research results. This shortfall is particularly evident in the absence of

platforms or channels dedicated to the transformation and application of research outcomes. As a result, even innovative research conducted by students may fail to reach the patients and healthcare practices that could benefit from these advancements.

In an era marked by rapid advancements in artificial intelligence, big data, and other technologies, the importance of fostering innovative thinking, evidence-based practice, and transformational capabilities among nursing students cannot be overstated [19]. Moreover, the lack of transformation and application of research results limits the profession's ability to evolve and adapt to new scientific discoveries and technological advancements, thereby slowing down the overall progress and innovation.

3.2 Reflections on Improving the Research Capabilities of Nursing Professional Master's Students

3.2.1 Research Course Training and Academic Exchange

The enhancement of research capabilities among nursing professional master's students is a multifaceted endeavor that can be significantly advanced through structured research course training and active engagement in academic exchanges. These activities are pivotal in equipping students with a comprehensive set of research skills and knowledge that extend beyond the scope of their immediate field [20]. Participation in a variety of research course training classes and lectures can provide students with a robust foundation in research methodologies, critical analysis, and scientific writing. These courses, when designed to incorporate interdisciplinary perspectives, can foster a more holistic understanding of research within and beyond the nursing discipline. Exposure to diverse research ideas and methods can stimulate innovative thinking and encourage students to approach problems from multiple angles, thereby enriching the quality and impact of their research [21].

Furthermore, active involvement in domestic and international academic conferences and exchange meetings is crucial for nurturing a global perspective in nursing research. Such events offer platforms for students to not only present their work but also to engage with the latest research findings and development trends within the nursing community and related fields. These interactions can be instrumental in broadening students' horizons, fostering a deeper understanding of the multifaceted nature of healthcare issues, and inspiring new research directions. The value of academic exchange is also evident in the opportunities it provides for networking with peers and established experts in the field. These connections can lead to collaborative research projects, mentorship opportunities, and a support system that is vital for the personal and professional growth of nursing students.

Universities and faculty play a critical role in facilitating these academic exchanges by building platforms that encourage the dissemination and discussion of research. By creating an environment that is conducive to free, open, and inclusive academic discourse, institutions can significantly contribute to the development of critical thinking, innovation, and research capabilities among graduate students. An academic atmosphere that values curiosity, exploration, and rigorous inquiry is essential for nurturing the next generation of nursing researchers who are prepared to tackle the complex challenges of modern healthcare.

3.2.2 Scientific Research Practice

Engagement in scientific research practice is a cornerstone of developing robust research capabilities among nursing master's degree students. It is through hands-on involvement in research projects and programs that students can truly immerse themselves in the scientific process, from conceptualization to execution and dissemination of findings. This practical experience is invaluable in bridging the gap between theoretical knowledge and its application in real-world scenarios [22].

When nursing students participate in interdisciplinary research projects, they gain exposure to diverse methodologies and perspectives that can enrich their own research approaches. Such collaborations can also foster a deeper understanding of the complexities inherent in healthcare issues, which often require multifaceted solutions. For students who are not yet ready to independently design their thesis proposals, contributing to existing projects allows them to develop a practical acumen that is critical for their future research endeavors.

Participation in research practice can take various forms, such as data collection through surveys or interviews, data entry, and statistical analysis. Each of these tasks provides a unique learning opportunity and helps students to appreciate the intricacies involved in research conduct. For instance, data collection methods can offer insights into the nuances of patient experiences, while statistical analysis can hone their analytical skills [23], which are essential for drawing meaningful conclusions from research data. Moreover, engaging in scientific research practice encourages students to think critically and promotes problem-solving skills. It challenges them to apply theoretical frameworks to practical scenarios, navigate unexpected challenges, and contribute to the advancement of knowledge within their field. This process not only deepens their comprehension of scientific research problems but also stimulates creative and innovative thinking.

3.2.3 Exploration of Clinical Second Supervisor and Supervisor Group System

The clinical second supervisor system and supervisor group model present unique considerations in the context of nursing master's degree education. These systems are pivotal in addressing the dual focus on research and clinical capabilities that are integral to the nursing discipline. However, the implementation of these systems is often hindered by limited clinical teaching capacity and other logistical challenges. The traditional model of a single supervisor may not fully cater to the complex educational needs of nursing students, particularly when it comes to balancing research with clinical practice. The introduction of a clinical second supervisor, often a senior nursing professional with significant experience, could potentially enrich the educational experience by providing an additional layer of guidance and mentorship [24]. This second supervisor could offer practical insights into the clinical application of research, thereby bridging the gap

between academia and practice.

In scenarios where the clinical second supervisor system is not regularly carried out, the reliance on supervisor groups becomes more pronounced. These groups, comprised of members from various fields and professional backgrounds, can offer a diverse range of perspectives and expertise. This diversity is particularly beneficial in fostering a comprehensive approach to nursing education, where research design, project development, and academic assessment are concerned [25]. The involvement of multiple supervisors in a group setting can also enhance the educational experience by exposing students to different methodologies, research approaches, and professional expectations. This exposure can be instrumental in developing a well-rounded understanding of the nursing profession and its research components. Moreover, the collaborative nature of the supervisor group system can encourage a more dynamic and interactive learning environment, where students are encouraged to engage with a variety of ideas and viewpoints.

However, the effectiveness of the supervisor group system is contingent upon the active participation and commitment of all group members. There is a need for clear communication, defined roles, and a shared vision among supervisors to ensure that the group's collective efforts are aligned with the educational goals of the nursing program. The group's dynamic can also influence the development of students' soft skills, such as interpersonal communication and administrative affairs handling, which are crucial for their future roles as nursing professionals.

The exploration of the clinical second supervisor and supervisor group system in nursing education highlights the complexities and potential benefits of a multi-mentor approach. While these systems can offer valuable support and diverse perspectives to nursing students, they also present challenges that need to be carefully navigated to ensure they contribute positively to the research capabilities and overall development of nursing master's degree students.

3.2.4 Research Funding Investment, Expansion, and Perfection of Incentive Mechanisms

The financial support structure for nursing master's degree students plays a critical role in their ability to conduct and complete research. Many students in this program are recent undergraduate graduates who rely heavily on family support for their living and educational expenses, as they have not yet entered the workforce [26]. This financial dependence can be a significant barrier to their research activities, which often require substantial funding for various components. Clinical subsidies provided to nursing master's degree students during their clinical rotation practice are often significantly lower compared to their peers in other medical fields, such as clinical and oral master's degree students. This disparity can exacerbate the financial strain on nursing students, particularly when they face considerable costs associated with research activities.

These costs include expenditures on experimental equipment and materials, data collection and analysis, paper publishing and dissemination, and participation in academic exchanges and conferences. The lack of sufficient research funding can severely hinder the progress and quality of scientific research undertaken by nursing students. When supervisors or universities are unable to provide the necessary financial support, students may find it challenging to purchase required equipment, gather essential data, or present their findings at academic events [27]. This financial constraint can lead to delays in research timelines, reduced research output, and even prevent some students from pursuing promising research avenues.

The financial limitations also impact the dissemination of research findings, which is a crucial step in the research process. Publishing in academic journals often involves fees, and attendance at conferences requires financial support, both of which can be prohibitive for students without adequate funding. This can limit the visibility and impact of their research, potentially slowing the transfer of new knowledge and innovations into practice. Moreover, the financial pressures can detract from the overall educational experience of nursing students, as they may need to balance part-time work with their studies and research commitments. This balancing act can lead to increased stress and reduced focus on their academic and research pursuits, potentially affecting the quality of their work and their overall success in the program.

In light of these challenges, it is evident that the current funding landscape for nursing master's degree students requires attention. There is a clear need for a more robust financial support system that can alleviate the financial burden on students, allowing them to focus on their research and academic development without undue financial stress [28].

3.2.5 Implications from Developed Countries on Course Setting for Enhancing Research Capabilities and Implications for Our University

The cultivation of research capabilities is a critical component of nursing master's degree education, and it is an area where developed countries have made significant strides. These nations recognize the importance of equipping nursing students with a comprehensive skill set that prepares them for the dynamic and evolving landscape of healthcare. The curriculum content in nursing master's degree programs in developed countries is designed to cover a broad spectrum of research-related competencies, including qualitative and quantitative research methods, data collection, and statistical analysis. Institutions like the University of Birmingham in the UK go further by incorporating mixed research methods, action research, and specialized methodological courses tailored to specific research areas within nursing, such as sports and rehabilitation. This approach not only provides students with a deep understanding of research methodologies but also enables them to apply these skills in focused areas, enhancing the relevance and applicability of their research. In Australia, the nursing master's degree program places a strong emphasis on the development of research skills from the ground up, including research proposal writing, introduction to research, literature review, research framework development, research methods, research planning, and thesis writing. This comprehensive coverage ensures that

students are well-versed in every aspect of the research process, from conceptualization to completion. In the United States, nursing master's degree programs are characterized by their breadth and focus on the intersection of nursing with society, the diversity of nursing populations, and the value of multidisciplinary cooperation. These programs emphasize the combination of theory and practice, offering courses that bridge the gap between academic research and its practical application in evidence-based nursing practice and the integration of health economics with nursing fields [29].

The curriculum content in developed countries is designed to foster a deep understanding of research principles and their application in nursing practice. This approach values the development of research capabilities as a core competency for nursing professionals, recognizing the importance of evidence-based practice in improving patient outcomes and advancing the nursing profession. In contrast, many domestic universities face challenges in their curriculum settings for nursing master's degree students. Often, there is a high proportion of public courses with a limited number of specialized professional courses. Moreover, these courses are frequently taught in conjunction with clinical medicine and oral medicine professionals, which may not fully address the unique research needs and perspectives of nursing students. Furthermore, few domestic universities have developed specialized courses that cater to the diverse research directions within nursing. This gap in curriculum design can limit the research capabilities of nursing students, as it does not provide them with the opportunity to delve into specific areas of nursing research or to develop a nuanced understanding of the multifaceted nature of nursing practice.

The curriculum in developed countries serves as a model for domestic universities, highlighting the importance of a comprehensive, research-focused curriculum that prepares nursing students for the complexities of modern healthcare. It underscores the need for domestic universities to reassess and enhance their curriculum offerings to better equip nursing students with the research skills necessary to drive innovation and improve patient care [30].

4. Discussion

In summary, this paper takes Youjiang Medical University for Nationalities as an example, delineate the challenges and dilemmas encountered in the cultivation of research capabilities among nursing master's degree students, particularly within the context of ethnic minorities regions in China. It has also proposed strategies to enhance these capabilities, drawing on both domestic and international best practices. The nursing profession is at a critical juncture where the integration of evidence-based practice, technological advancements, and interdisciplinary collaboration is essential for advancing patient care. The cultivation of research capabilities in nursing master's degree students is not merely an academic pursuit but a vital step towards improving healthcare outcomes and fostering innovation within the field.

From my perspective as an educator, it is clear that the traditional model of nursing education must evolve to meet the demands of a rapidly changing healthcare landscape. The emphasis on clinical skills, while essential, should be balanced with a robust research component to prepare nursing professionals to lead in an era of healthcare reform [31]. The lack of research funding and the dearth of interdisciplinary collaboration opportunities are not just local issues but reflect broader systemic challenges that require a concerted effort from academic institutions, healthcare providers, and policymakers. It is imperative that we create an ecosystem that not only supports but also incentivizes nursing students to engage in research, thereby fostering a new generation of nursing leaders who are equipped to drive change.

Looking ahead, I advocate for a more holistic approach to nursing education that integrates research and clinical practice more seamlessly. This includes the development of curricula that reflect the latest advancements in healthcare, the establishment of partnerships with healthcare organizations to provide real-world research experiences, and the creation of funding mechanisms that alleviate the financial burden on students undertaking research [32]. In conclusion, the enhancement of research capabilities in nursing graduate students is a complex endeavor that requires a multifaceted approach. It is my hope that this paper will serve as a catalyst for dialogue and action among stakeholders in the nursing education community, leading to tangible improvements in the support and resources available to our nursing master's degree students, and maybe future nursing professionals [33]. The future of nursing is bright, and with the right investments in research education, we can ensure that nursing professionals are well-equipped to meet the challenges of tomorrow.

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