Journal of Contemporary Educational Research, 2025, Volume 9, Issue 9
http://ojs.bbwpublisher.com/index.php/JCER
ISSN Online: 2208-8474
ISSN Print: 2208-8466

Exploration of the Contradictions and Countermeasures in Medical Students' Internships, Postgraduate Entrance Examinations, and Employment from the Perspective of Work-Study Conflict

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Abstract: *Objective:* The objective of this research is to thoroughly investigate the extent of mutual interference among clinical internships, postgraduate entrance examinations, and employment by examining engineering contradictions, thus offering theoretical insights and guidance for medical students to attain high-quality outcomes in clinical internships. *Methods:* A combination of literature reviews, questionnaires, interviews, and observations of internships was utilized, followed by a statistical analysis to assess the levels of interference among the three factors. *Results:* The senior participants achieved significantly higher scores than their junior counterparts in evaluations of comprehensive humanistic quality, understanding professional values, communication abilities, clinical skills, and attitudes towards learning, with differences that were statistically significant ($p < 0.05$). After applying an interactive training approach that merges early clinical practice with foundational medical education, both groups displayed notable enhancements in activity content, formats, instructor attitudes, clinical performance, and the blending of theory with practice ($p < 0.05$). *Conclusion:* By emphasizing 'early clinical' education, students are effectively engaged in clinical practice through active involvement, leading to feedback-oriented training. This strategy not only improves the overall quality of internships but also reduces the risk of scheduling conflicts with postgraduate entrance examinations and employment opportunities.

Keywords: Engineering-education conflict; Medical university students; Internship; Postgraduate entrance examination; Employment; Practical exploration.

Online publication: Oct 21, 2025

1. Introduction

Undergraduate students at medical universities face a variety of challenges during their internship experiences, especially in the stage of clinical practice. A work-study conflict emerges when students must balance both their professional duties and academic obligations within limited hours. Due to factors such as time constraints and fatigue, achieving a successful balance between these two elements often becomes a daunting task [1,2]. As university enrollment expands, hospitals have heightened their expectations for graduates, leading to increased competition for jobs and motivating numerous clinical medicine undergraduates to view pursuing a master's degree as a pressing need [3,4]. Societal demands on physicians have risen, and the nation seeks to improve the expertise of clinical doctors through standardized residency training along with the implementation of policies concerning professional master's degrees and residency training frameworks.

According to this new policy, during their postgraduate education, students are entitled to receive the Practitioner Qualification Certificate, the Standardized Training Certificate for Resident Physicians, the Master's Degree Certificate, and the Graduation Certificate, collectively known as the 'Four Certificates in One.' This initiative has notably boosted the number of postgraduate applicants by 5% to 6% [5,6]. While the 'Four Certificates in One' training program facilitates a smoother transition from student status to attending physician, tensions persist between clinical internships, the postgraduate entrance exam, and job placement in clinical medicine disciplines at medical universities. These tensions predominantly arise from the overlapping schedules for preparing for the postgraduate entrance exam and completing clinical internships, with both the entrance exam and job search consuming a significant portion of the internship timeline [7,8]. Concentrating on internships or seeking employment can also hinder students' ability to review and prepare adequately for their exams. On the other hand, if students invest all their efforts into preparing for exams, they might greatly diminish the time they have for internships. This reduction could negatively influence the quality of their clinical training and hinder their ability to fulfill the clinical internship requirements of their undergraduate studies. Consequently, this situation can adversely affect future job searches, perpetuating a cycle between internships, postgraduate entrance examinations, and employment opportunities.

To explore the tensions between clinical internships, entrance exams for postgraduate studies, and employment, we examined the fundamental factors contributing to the subpar quality of clinical internships. These factors encompass ambiguous internship goals, inadequate training in essential clinical skills, limitations in clinical practical competencies, a lack of clinical reasoning abilities, and shortcomings in humanistic qualities. From the standpoint of clinical education and training, this article suggests relevant improvements aimed at boosting the effectiveness of clinical internship programs. Additionally, this paper discusses the significance of cultivating high ideals and admirable professional attitudes among students from the beginning of their academic journey, which would elevate their awareness of clinical internships and facilitate the alignment of educational, work, and employment pursuits within the framework of advanced medical education.

2. Materials and methods

2.1. General information

A survey utilizing a questionnaire was carried out to evaluate the early scientific research practices and clinical internships among clinical medicine students from the 2019 and 2021 cohorts at Xinxiang Medical University. All procedures followed the guidelines of the Ethics Committee of Xinxiang Medical University. The study gathered a total of 624 valid responses. Concerning gender distribution, 230 male students made up 36.9% of the sample and were aged between 18 and 22 years (average age 20.42 ± 1.38 years), while 394

female students constituted 63.1% and were aged 19–23 years (average age 21.07 ± 1.69 years). In relation to academic levels, the lower-grade group (2021 cohort) included 321 students, representing 51.44%, whereas the higher-grade group (2019 cohort) comprised 303 students, or 48.56%. In addition, Questionnaire 2 received 584 valid responses, with 234 males (40.06%, aged 18–23, mean age 20.16 ± 2.33 years) and 350 females (59.93%, aged 18–24, mean age 21.57 ± 2.46 years). Each of the lower and upper grade groups contained 292 students, signifying 50.0%. For this investigation, Questionnaire 1 produced 624 valid replies, composed of 230 males and 394 females, which correspond to 36.9% and 63.1%, respectively. The lower-grade group from the Class of 2021 and the upper-grade group from the Class of 2019 comprised 321 and 303 students, making up 51.44% and 48.56%, respectively. Questionnaire 2 collected 584 valid feedbacks, encompassing 234 males and 350 females, accounting for 40.06% and 59.93%, respectively. Notably, both the lower and higher-grade groups contained 292 participants each, representing 50.0%. A comparison of age and gender across the groups indicated no statistically significant differences ($p > 0.05$), suggesting their comparability.

2.2. Methods

The current humanistic quality among medical students in China is generally low, largely due to educational biases and an excessive focus on professional training that neglects the humanities in curriculum development. In addition, the frameworks for incorporating humanistic education within higher education institutions are not adequately developed, leading to a gap between the theories and practices of humanistic instruction [9–11]. Several factors contribute to this scenario: Firstly, conventional educational approaches have restricted the enhancement of practical skills and operational abilities among medical practitioners. Secondly, there is often a conflation in certain institutions between humanistic education and ideological or political education, which results in curricula that do not adequately capture the distinct features of medical humanities. Moreover, many medical universities lack structured mechanisms for evaluating and providing feedback on humanistic quality education [12].

This study aims to thoroughly investigate the interrelationship between clinical internships, postgraduate entrance assessments, and job placements while considering the challenges posed by work-study conflicts. To achieve this, it explores the convergence of these three elements as a primary focus. Through techniques including interviews, observations during internships, literature reviews, and surveys, a theoretical examination of the extent of mutual interference among these factors is performed. The insights gained will inform the proposal of an interactive training framework that aligns early clinical internships with foundational medical education. To address the ongoing conflict between work and study experienced by clinical medical students at our university, it is advisable to implement strategies that include integrating early clinical training with preparation for postgraduate entrance examinations, as well as arranging clinical internships and exam preparation at distinct intervals. These approaches provide valuable reference and theoretical insights for medical students, enabling them to fulfill their clinical internship responsibilities with a high level of quality.

2.2.1. Literature review and analysis method

Clinical medicine represents a discipline that is both practical and technical, requiring students to establish a robust theoretical foundation while adeptly applying their acquired knowledge and skills in real-world scenarios. It is essential that basic medical education harmoniously combines with clinical medical education to mutually support one another, permitting early exposure of students to clinical environments without jeopardizing their foundational studies. This early exposure allows them to immerse themselves in the hospital setting, enhances

their understanding of the professional importance of clinical practice, and promotes the growth of their overall competencies. Through a thorough review of existing literature, effective teaching strategies for integrating early clinical internships with basic medical education are developed specifically for junior students in their first semester of the second university year.

Simultaneously, the objectives of clinical professional socialization for senior medical students highlight the critical role of clinical internships. The cultivation goals related to the professional socialization of medical students include the acquisition of professional knowledge, development of clinical skills, enhancement of doctor-patient communication, and improvement of professional consciousness. To fulfill these goals, a variety of educational approaches aimed at professional ideology and career training should be employed. The pursuit of postgraduate education and clinical internships aims to boost employability prospects. As reforms in medical education continue to advance in China, there is a rising demand for highly skilled medical professionals in large and medium-sized cities, coinciding with the gradual increase in admission criteria for hospitals. As a result, numerous students aiming for careers in healthcare choose to undertake postgraduate education to improve their academic credentials, consequently boosting their chances of securing better job positions.

Moreover, pursuing postgraduate studies allows students to enrich their grasp of clinical knowledge and expand their views, with the ultimate goal of developing them into outstanding physicians or researchers. For certain students, strategies for development should initiate during their earlier academic phases, including clinical experiences that are thoughtfully scheduled to align with postgraduate entrance exams and clinical internships.

2.2.2. Questionnaire survey method

This research focused on undergraduate students from two separate cohorts: the lower grade cohort (Class of 2021, sophomore year) and the upper grade cohort (Class of 2019, senior year) in the clinical medicine program at a medical university located in a particular province (hereinafter referred to as medical students). We independently created the "Comprehensive Evaluation Scale for Humanistic Qualities of Clinical Physicians," based on modern concepts in medical management. This questionnaire includes four dimensions: professional values, comprehension, communication skills, and clinical competencies along with learning attitudes, with a maximum score of 100 points, which students evaluated themselves. The Cronbach's alpha for the scale is 0.947, demonstrating strong content validity. Additionally, we crafted the "Clinical Internship Quality Feedback Form for Medical Undergraduates," which primarily highlights the dynamic development of early scientific research practices in conjunction with foundational medical education and subsequent clinical activities. This questionnaire assesses students' views on the activity's content, format, instructor attitudes, clinical performance, and the synthesis of theory with practice, with each question rated from 0 to 10. A score of 9–10 reflects satisfaction, 7–8 signifies average, and 6 denotes dissatisfaction. We transformed the developed questionnaire into an electronic format, creating an electronic link and a QR code.

Following the principles of convenience sampling and based on voluntary participation, the class advisor shared the questionnaire link and QR code within the WeChat group of the class. The survey was carried out over a 31 day period from July 9 to August 9, 2022. Data from the survey platform were exported in Excel format, and a database was created, with statistical analyses performed using SPSS 22.0 software.

2.2.3. Interview method

Interviews were carried out with several appropriate basic and clinical faculty members from the institution and its associated hospitals. The content of these interviews covered various objective questions related to the relevance, specific details, support for students, and the practicality of initiating early clinical practice activities,

alongside a subjective inquiry regarding recommendations and viewpoints.

2.3. Observation indicators

This section emphasizes the assessment of medical students' self-evaluations and their cognitive, attitudinal, and behavioral evaluations related to humanistic qualities in both senior and junior cohorts. Important elements to consider include the overall score for humanistic qualities, understanding of professional values, communication abilities, clinical competencies, and attitudes towards learning. Furthermore, utilizing the Early Clinical Internship Quality Feedback Form for medical undergraduates, we aim to gather insights into the experiences of both student groups concerning the content of activities, formats of activities, attitudes of mentors, performance in clinical practices, and the level of integration between theoretical knowledge and practical application.

2.4. Statistical methods

Statistical analysis of the data was performed utilizing SPSS version 28.0. Measurement data that adhered to a normal distribution with equal variance were represented as mean ± standard deviation ($\chi \pm s$). To conduct pairwise comparisons among groups, t-tests were employed, establishing a significance threshold at $p < 0.05$. Categorical data were displayed in terms of counts and percentages, and comparisons between groups were carried out using χ^2 tests, with $p < 0.05$ deemed statistically significant.

3. Results

3.1. Comprehensive self-assessment form of humanistic qualities for medical undergraduates

This research is based on the presumed aims of the medical professional ethos, which includes "valuing life, healing the injured, and saving the dying; showing a readiness to make sacrifices; and reflecting limitless compassion." Furthermore, it promotes the development of a holistic perspective on health and hygiene, shifting from a focus on diseases to one that centers on individuals. A quantitative approach was utilized, asking participants to engage in a detailed self-evaluation of their humanistic attributes. The results indicate that the senior group scored notably higher than the junior group in evaluating overall humanistic qualities, professional ethics and understanding, communication abilities, clinical competencies, and attitudes towards learning, with these differences reaching statistical significance ($p < 0.05$) (**Table 1**).

3.2. Clinical internship satisfaction feedback form by different grade groups

Student satisfaction regarding various aspects of clinical internship quality surpassed 85% for both lower and higher-grade groups. Following the introduction of an interactive training approach that merged early clinical internships with foundational medical education, both groups demonstrated notable enhancements in their scores related to activity content, activity format, instructor attitude, performance in clinical practice, and the connection between theory and practice ($p < 0.05$). Detailed findings can be found in **Table 2**.

4. Discussion

4.1. Comprehensive reform of humanistic quality education for medical students is imminent

The "Opinions on Deepening Medical-Education Collaboration to Further Promote the Reform and

Development of Medical Education," released by the State Council, clearly outlines the importance of enhancing collaboration between medical and educational sectors to effectively advance the reform of medical education and improve the overall quality of medical students [13]. This study's results reveal that a significant number of interns acknowledge the necessity of developing their humanistic qualities. The final year of medical undergraduate internships plays a critical role in building professional practical skills, underscoring the focus on nurturing clinical competencies in China, while also exposing gaps in training related to humanistic qualities [14]. Engaging in clinical practice is an essential phase for medical students as they transition into clinical roles, serving as a crucial opportunity to apply theoretical knowledge within clinical environments and hone both clinical reasoning and skills. Nevertheless, numerous students feel a tension exists between their internships, the postgraduate entrance exams, and job acquisition. Even though the primary aim of the postgraduate exam is to secure employment, the clinical internship represents a vital process that every medical student must experience, during which their abilities can be thoroughly practiced and refined. Consequently, prioritizing the development of humanistic education for medical students and boosting their intrinsic motivation are fundamental objectives in reforming medical education.

4.2. Interactive training combining early clinical practice with basic medical education enhances internship quality

Engagement in practical experience is crucial for the development of talent and the improvement of competencies, ultimately aiming to connect humanistic education with real-world applications [15,16]. This research presents a novel strategy for the early development of clinical medicine students planning to take postgraduate entrance exams. By merging early clinical practice with preparation for postgraduate exams and implementing a staggered approach to clinical internships and exam readiness, the results show that, irrespective of whether students belong to lower or upper grades, their satisfaction regarding various aspects of clinical internship quality surpassed 85%. After applying the interactive cultivation method that integrates early clinical practice with foundational medical education, both student groups recorded notable enhancements in their assessments of activity content, structure, mentor disposition, clinical performance, and the harmony between theory and practice ($p < 0.05$). Focusing on 'early clinical' education allows students to engage closely with clinical practice through active participation in clinical tasks. This method encourages them to leave the classroom environment and take part in practical clinical activities, thereby igniting their enthusiasm for learning and enriching their comprehension of medical humanities. As a result, they are more adept at applying their knowledge and fostering an environment of active learning. The seamless integration of theory and practice promotes feedback-oriented training, which not only elevates the overall standard of internships but also mitigates potential conflicts with postgraduate entrance exams and job commitments.

4.3. Countermeasures

In the current reform of medical education, it is crucial to transform educational concepts. Strengthening humanistic literacy in education requires the implementation of a philosophy for talent cultivation that fuses "medicine" with "humanities", effectively combining humanistic literacy with medical skills training. Many students show a desire to improve their humanistic qualities, prompting medical universities to employ varied strategies to elevate the humanistic literacy of their medical students. For example, during their internships, medical students gain more direct interaction with patients, making it essential to augment training in medical ethics, doctor-patient communication, and related areas, while also ensuring the selection of exemplary mentors

who can serve as role models. Additionally, medical schools ought to revise the singular approach to evaluating humanistic qualities to better develop students' skills in patient care and empathy as part of their humanistic education. When appropriate, the performance during clinical internships can be included in the humanistic quality evaluation framework, ensuring effective oversight throughout the internship experience [17,18]. In short, within the interactive training framework of early clinical internships and foundational medical education, students should receive scientific guidance that transforms traditional, lecture-based teaching methods into more adaptable strategies [19]. Such a transformation enables medical education to infiltrate all facets of professional, academic, and social education. For example, the promotion of Problem-Based Learning (PBL) methodologies not only aids in summarizing essential points from clinical courses but also creates systematic connections to fundamental knowledge [20].

5. Conclusion

Through the analysis of real case studies and surgical footage, students can strengthen their information retention, ignite their passion for learning, refine their clinical competencies, and effectively navigate the balance between internships, postgraduate entrance examinations, and job opportunities.

Funding

Ministry of Education Industry-University Cooperative Education Program (Project No.:231002999080311); Xinxiang Medical University Education and Teaching Reform Research (Project No.: 2021-XYJG-100)

Disclosure statement

The authors declare no conflict of interest.

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