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Medical Humanities Education and Empathy among Chinese Medical Students: A Mixed-Methods Study

Wang Haiyan, Syeda Rabia Tahir*, Wang Yan, Si Peipei

Faculty of Education & Humanities, Unitar International University, Malaysia

*Corresponding Author Email: syeda.tahir@unitar.my

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Abstract

This study examines the relationship between medical humanities education and empathy among Chinese medical students using a mixed-methods design. Quantitative data were collected through a survey of 500 undergraduate medical students from five medical institutions, while qualitative data were obtained from semi-structured interviews with students, faculty members, and administrators. The findings show that medical humanities exposure is positively associated with empathy, although the strength of this relationship is influenced by curriculum design, teaching methods, assessment practices, and institutional support. The qualitative results further reveal that fragmented curricula, limited longitudinal integration, and insufficient faculty resources constrain the effectiveness of medical humanities education. Overall, the study highlights the importance of coherent, well-supported, and contextually relevant medical humanities education in fostering empathy among future physicians in China.

Keywords: Medical Humanities Education, Empathy, Chinese Medical Students, Mixed-Methods Study, Medical Education

Introduction

In recent years, medical education has increasingly recognized that professional competence extends beyond biomedical knowledge and technical proficiency. Empathy, ethical awareness, and patient centered communication are now widely regarded as essential attributes of effective physicians. Empathy in particular has been associated with improved patient satisfaction, better clinical adherence, and reduced physician burnout. As healthcare systems grow more complex and technologically driven, concerns have emerged regarding the erosion of empathic engagement during medical training.

Medical humanities education has been proposed as an important educational response to these concerns. Broadly encompassing ethics, literature, history of medicine, narrative practice, and reflective learning, medical humanities aim to cultivate a deeper understanding

of patients' lived experiences and the moral dimensions of care. Recent empirical research continues to demonstrate that exposure to humanities based learning is positively associated with empathy, patient centeredness, and professional identity formation among medical trainees. For example, a multisite mixed methods study examining humanities exposure among emergency medicine residents found that both prior humanities education and current engagement were significantly associated with higher empathy scores, even after adjusting for demographic and training variables (Balhara et al., 2022). Although conducted in postgraduate settings, these findings suggest that humanistic learning may exert a sustained influence across the educational continuum.

The importance of medical humanities education has become more pronounced in the context of global disruptions to medical training. The COVID 19 pandemic intensified ethical tensions, reduced opportunities for meaningful patient interaction, and highlighted vulnerabilities in medical students' professional development. Ethical analyses of undergraduate medical education during the pandemic suggest that utilitarian pressures and hidden curricula may contribute to emotional distancing and empathy decline if reflective and humanistic learning opportunities are insufficiently supported (Southworth & Gleason, 2021). These observations reinforce the need for structured and intentional humanities education that can help buffer against empathy erosion during periods of heightened clinical and societal stress.

Despite growing international consensus regarding the value of medical humanities, implementation remains uneven across institutions and regions. While medical schools in North America and Europe have increasingly integrated humanities into formal curricula, evidence from non Western contexts remains comparatively limited. In China, national policy documents emphasize the importance of cultivating medical professionalism and humanistic spirit, yet empirical research examining how medical humanities are implemented and experienced at the institutional level remains sparse. Existing studies have often focused on descriptive curriculum analyses or single outcome measures, with limited integration of quantitative and qualitative evidence.

Recent qualitative research highlights that structural constraints, curriculum overload, and cultural prioritization of technical achievement may impede the effective cultivation of empathy and compassion during medical training (Lane et al., 2023). Faculty and students frequently identify time pressure, assessment driven learning, and limited institutional support as barriers to sustained humanistic engagement. These challenges suggest that the relationship between humanities education and empathy cannot be fully understood without examining institutional contexts, stakeholder perceptions, and mechanisms of implementation.

To address these gaps, the present study adopts a mixed methods design to investigate medical humanities education and empathy among Chinese medical students. By combining large scale survey data with in depth qualitative interviews, this study aims to examine the current status of humanities education, identify key implementation challenges, explore student and faculty perceptions, and empirically assess the association between humanities exposure and empathy. Through this integrated approach, the study seeks to contribute

context specific evidence to the international literature and to inform the development of more effective and culturally responsive medical humanities education in China.

Medical humanities education is increasingly recognised as a foundational component of contemporary medical training because it strengthens patient-centred care, professional identity formation, ethical reasoning, and empathic engagement. Empathy, in particular, is widely regarded as a critical outcome of humanistic medical education because it is associated with higher-quality clinician–patient relationships and more effective communication in clinical encounters (Menezes et al., 2021; Nembhard & Huerta, 2022). In recent years, educational approaches that incorporate reflective practice, narrative medicine, and structured discussion formats have been repeatedly highlighted as promising routes to empathy cultivation, suggesting that empathy can be supported through pedagogically designed learning experiences rather than being treated as a purely dispositional trait (Menezes et al., 2021).

Despite this growing international consensus, there remains limited context-specific empirical evidence explaining how medical humanities education is implemented and experienced within Chinese medical schools, and how such education is associated with empathy development among Chinese undergraduate medical students. Recent scholarship mapping the global medical humanities education literature shows that empathy, ethics, and narrative medicine have become persistent core themes, while simultaneously calling attention to uneven evidence bases across countries and institutional contexts (Hong et al., 2024). Within China, available studies and educational discussions have often concentrated on policy orientations, general curriculum descriptions, or conceptual advocacy, leaving an evidence gap regarding (a) how medical humanities exposure is patterned in real undergraduate training settings, (b) whether measurable empathy outcomes differ by levels of exposure, and (c) what institutional, pedagogical, and cultural conditions may enable or constrain implementation effectiveness (Hong et al., 2024).

A further limitation of the existing evidence is that research designs frequently rely on single-method approaches that are either descriptive or solely outcome-focused. For example, quantitative studies in China have demonstrated that empathy is meaningfully related to adjacent humanistic competencies (e.g., narrative competence and self-efficacy), implying that empathy can be studied as part of a broader educational mechanism rather than an isolated endpoint (Liu et al., 2025). At the same time, intervention-oriented work in Chinese training contexts suggests that humanities-related pedagogies—such as narrative medicine integrated into internship teaching—may produce measurable improvements in empathy scores, supporting the plausibility of an education–empathy linkage while also raising questions about implementation conditions and learner experience (Yuan et al., 2023). However, without integrating quantitative outcome assessment with qualitative stakeholder perspectives, it remains difficult to explain *how* and *why* medical humanities education works (or fails to work) in specific medical school environments, and what contextual factors shape both delivery and perceived impact.

Accordingly, the research problem addressed in this study is the lack of integrated, context-specific evidence on the implementation, learning experience, and educational outcomes of medical humanities education in Chinese medical schools, particularly regarding empathy

development among undergraduate medical students. This gap limits both educational decision-making (e.g., curriculum design and resource allocation) and scholarly understanding of the mechanisms through which medical humanities education may influence humanistic competencies within Chinese medical training environments (Hong et al., 2024; Menezes et al., 2021).

The overall objective of this study is to examine the status, implementation, and educational outcomes of medical humanities education among Chinese medical students, with a particular focus on empathy development.

To achieve this overall objective, the study is guided by the following specific research objectives:
RO1: To describe the current patterns of medical humanities education across selected Chinese medical institutions.
RO2: To assess the relationship between medical humanities education exposure and empathy among Chinese medical students.
RO3: To explore institutional and pedagogical factors influencing the implementation and perceived impact of medical humanities education in Chinese medical schools.
To achieve these objectives, the study is guided by the following research questions:
RQ1: What are the current patterns of medical humanities education experienced by undergraduate medical students in selected Chinese medical institutions?
RQ2: Is there a statistically significant relationship between exposure to medical humanities education and empathy among Chinese medical students?
RQ3: What institutional, pedagogical, and cultural factors influence the implementation and effectiveness of medical humanities education in Chinese medical schools?

Literature Review
Medical humanities education has increasingly been recognized as a critical component of contemporary medical training, particularly in response to concerns regarding declining empathy, professional burnout, and strained doctor–patient relationships. Over the past decade, medical educators have sought to rebalance the dominance of biomedical and technical instruction with humanistic approaches that emphasize ethical reasoning, emotional awareness, reflective capacity, and patient-centered care. Recent scholarship has focused on clarifying the educational value of medical humanities, examining their relationship with empathy development, and identifying institutional and cultural factors that shape their implementation.

Empathy has emerged as a central construct in discussions of medical professionalism. Empirical studies consistently demonstrate that empathic engagement contributes to improved patient satisfaction, adherence to treatment, and clinical outcomes, while also supporting physician well-being. However, multiple longitudinal studies have reported a gradual erosion of empathy during medical training, particularly during the transition from preclinical education to clinical practice. This phenomenon has been attributed to increasing workload, emotional exhaustion, performance pressure, and the hidden curriculum of efficiency and hierarchy that characterizes many clinical environments. In response, scholars have proposed medical humanities education as a potential counterbalance to the depersonalizing effects of medical training.

Recent quantitative research has provided growing evidence of a positive association between humanities exposure and empathy-related outcomes among medical learners. Balhara et al. (2022) conducted a multisite study examining self-reported humanities exposure among emergency medicine residents and found that greater engagement with humanities activities was associated with higher empathy scores, even after controlling for gender and year of training. Although the magnitude of the association was moderate, the findings suggested that humanities engagement may help sustain empathic orientation beyond undergraduate medical education. Similar trends have been observed in undergraduate populations, where participation in ethics, narrative medicine, and reflective writing courses has been linked to enhanced perspective-taking and patient-centered attitudes.

Beyond empathy, recent literature has emphasized the broader professional and ethical functions of medical humanities education. Studies have highlighted their role in fostering moral sensitivity, tolerance of ambiguity, cultural competence, and reflective judgment. Lane et al. (2023) reported that curriculum leaders and educators perceived humanities-based learning as particularly effective in promoting compassion, self-awareness, and professional identity formation. Participants in their qualitative study emphasized that humanities education creates spaces for learners to engage with moral uncertainty and emotional complexity, experiences often marginalized in traditional biomedical curricula. These findings align with international competency frameworks that increasingly define professionalism as encompassing ethical reflection and emotional intelligence alongside technical expertise.

Pedagogical approaches within medical humanities education have also received significant attention in recent research. Traditional lecture-based formats remain common, but there is increasing advocacy for experiential and reflective methods such as narrative medicine, arts-based learning, role-playing, and reflective writing. Evidence suggests that these approaches are more effective in cultivating empathy and ethical awareness than didactic instruction alone. Salam and Zainol (2022) found that reflective writing, when used as an assessment method in undergraduate medical electives, supported deeper emotional engagement and critical reflection among students. Similarly, arts-based and narrative approaches have been shown to facilitate perspective shifts by allowing learners to engage with patient experiences in a more personal and emotionally resonant manner.

Despite these pedagogical advances, recent studies consistently document structural and institutional barriers that limit the effectiveness of medical humanities education. Faculty shortages, limited interdisciplinary collaboration, insufficient training opportunities, and weak institutional incentives remain persistent challenges. In many institutions, humanities courses are offered as electives or confined to early stages of training, resulting in fragmented and episodic exposure. This lack of longitudinal integration has been identified as a major limitation, as isolated courses may raise awareness but fail to sustain long-term professional transformation. Southworth and Gleason (2021) further noted that crises such as the COVID-19 pandemic exposed and intensified existing vulnerabilities in medical education, including reduced opportunities for reflection and increased reliance on utilitarian models of care that risk undermining empathy.

Cultural and contextual factors also play a significant role in shaping the reception and impact of medical humanities education. Research across diverse educational settings indicates that hierarchical learning cultures, examination-driven evaluation systems, and norms discouraging emotional expression can inhibit reflective engagement. These dynamics are particularly salient in non-Western contexts, where imported humanities frameworks may not fully align with local cultural values or clinical realities. Recent comparative studies emphasize the importance of cultural localization and contextual adaptation in humanities curricula to ensure relevance and legitimacy among students and faculty.

Although the existing literature affirms the educational value of medical humanities, several gaps remain. First, much of the empirical research relies on single-method designs, limiting the ability to capture both measurable outcomes and contextual mechanisms. Second, while associations between humanities exposure and empathy have been documented, fewer studies examine how institutional structures, teaching practices, and learner perceptions interact to shape these outcomes. Third, there is limited large-scale empirical evidence from non-Western medical education systems, particularly within the Chinese context, where rapid modernization and unique cultural dynamics present distinct challenges and opportunities.

In response to these gaps, recent scholars have called for mixed-methods approaches that integrate quantitative measurement with qualitative exploration. Such designs enable researchers to examine not only whether medical humanities education is associated with empathy development, but also how and why these relationships emerge within specific institutional and cultural settings. By combining outcome-based analysis with stakeholder perspectives, mixed-methods research offers a more comprehensive understanding of the role of medical humanities in professional formation.

Although the existing literature provides strong theoretical and empirical support for the educational value of medical humanities, several important gaps remain. First, a substantial proportion of prior studies rely on single-method research designs, which limits insight into how measured educational outcomes are shaped by institutional, pedagogical, and cultural contexts. Second, while positive associations between medical humanities education and empathy have been widely reported, comparatively fewer studies investigate the mechanisms through which such associations emerge in practice, particularly from the perspectives of students, faculty, and administrators. Third, there remains a relative lack of large-scale empirical research conducted within non-Western medical education systems, especially in the Chinese context, where distinctive institutional structures and cultural norms may influence both the implementation and impact of medical humanities education. Collectively, these gaps highlight the need for mixed-methods research that integrates quantitative measurement with qualitative exploration in order to examine not only educational outcomes but also implementation processes. In response, the present study adopts a convergent mixed-methods design to investigate medical humanities education and empathy among Chinese medical students, thereby addressing these limitations and extending existing scholarship through a context-sensitive and methodologically integrated approach.

Methodology

This study adopts a mixed methods research design to investigate the status, implementation challenges, and educational outcomes of medical humanities education among Chinese medical students, with a particular focus on empathy development. Given the complexity of medical humanities as an educational phenomenon that encompasses curricular structure, institutional context, pedagogical practice, and learner experience, a single methodological approach would be insufficient to capture its multifaceted nature. A mixed methods design allows for the integration of quantitative and qualitative evidence, enabling both measurement of outcomes and exploration of underlying mechanisms.

For the purposes of this study, medical humanities education refers to formal curricular components addressing ethical reasoning, doctor patient communication, narrative medicine, medical history, literature and medicine, medical psychology, and related humanities-based learning activities within undergraduate medical education.

Humanities exposure was operationalized as a composite variable incorporating three dimensions: participation in medical humanities courses, number of courses completed, and students perceived level of curricular integration. Scores derived from these components were combined to categorize participants into low, moderate, and high exposure groups.

Empathy was conceptualized as a multidimensional construct encompassing cognitive understanding of patients' perspectives, emotional responsiveness, and patient centered attitudes. Empathy was measured using the student version of the Jefferson Scale of Physician Empathy, which has been widely validated in medical education research.

The quantitative component of the study employed a cross sectional survey design involving undergraduate medical students enrolled in clinical medicine programs at five medical universities and colleges in China. Participants were eligible if they were currently enrolled as full time undergraduate medical students and had completed at least one academic semester. Students on leave or enrolled in non clinical programs were excluded. A total of 540 questionnaires were distributed, of which 500 valid responses were retained for analysis, yielding a response rate of 92.6 percent.

Empathy was measured using the Jefferson Scale of Physician Empathy student version, consisting of 20 items rated on a five point Likert scale ranging from strongly disagree to strongly agree. Higher total scores indicate higher levels of self reported empathy. In the present study, the scale demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.87, indicating acceptable reliability for the sampled population.

The qualitative component consisted of semi structured interviews with 28 participants, including undergraduate medical students, faculty members involved in humanities teaching, and academic administrators. Participants were selected using purposive sampling to ensure variation in institutional type, geographic region, and professional role. Interviews lasted between 40 and 75 minutes, with an average duration of approximately 55 minutes. Data collection continued until thematic saturation was achieved, defined as the point at which successive interviews yielded no substantively new themes relevant to the research questions.

The study is guided by a pragmatic research paradigm. Pragmatism prioritizes the use of methods that best address the research problem and emphasizes practical consequences over strict epistemological allegiance. This paradigm is particularly suitable for applied educational research, where the aim is not only to explain phenomena but also to inform policy and curricular improvement. By combining quantitative and qualitative approaches, the study seeks to generate findings that are both empirically robust and contextually meaningful.

A convergent mixed methods design was employed. Quantitative and qualitative data were collected during the same phase of the study, analyzed separately using appropriate techniques, and then integrated at the interpretation stage. This design enables triangulation of findings and facilitates comparison between numerical trends and participant perspectives. The convergent approach is widely used in health professions education research where complementary forms of evidence are required to understand both outcomes and processes (Creswell & Plano Clark, 2017).

The quantitative component of the study involved a cross sectional survey of undergraduate medical students enrolled in clinical medicine programs at selected medical institutions in China. The survey was designed to address two primary purposes. First, it aimed to describe the current status of medical humanities education, including course types, instructional hours, teaching methods, assessment strategies, and perceived level of curricular integration. Second, it examined the relationship between students' exposure to medical humanities education and their levels of empathy.

Empathy was measured using the Jefferson Scale of Physician Empathy student version, a validated instrument widely used in medical education research. The scale assesses cognitive and affective dimensions of empathy in clinical contexts and has demonstrated good psychometric properties across diverse cultural settings. Additional questionnaire items were developed to capture students' exposure to medical humanities education, including the number of courses taken, perceived depth of integration, and self reported engagement in reflective or humanities related learning activities. All items were rated using Likert type scales. The survey was pilot tested to ensure clarity, reliability, and contextual appropriateness for Chinese medical students.

Quantitative data were analyzed using statistical software. Descriptive statistics were used to summarize participant characteristics and institutional patterns of medical humanities education. Pearson correlation analysis was conducted to examine the association between humanities exposure and empathy scores. Where significant associations were identified, regression analysis was used to assess the predictive relationship between humanities participation and empathy while controlling for relevant demographic variables. This analytical strategy allowed the study to move beyond description toward hypothesis testing regarding educational outcomes.

The qualitative component of the study consisted of semi structured interviews with faculty members, academic administrators, and undergraduate medical students. Qualitative methods were employed to explore issues that could not be adequately captured through survey data alone, including perceived barriers to implementation, institutional constraints,

cultural attitudes toward humanities education, and subjective experiences of empathy development. Participants were selected using purposive sampling to ensure diversity in institutional type, geographic region, and professional role.

Interview guides were developed in alignment with the research objectives and refined through pilot testing. The semi structured format allowed for consistency across interviews while providing flexibility to probe emerging themes. Interviews were audio recorded with participant consent and transcribed verbatim. Data collection continued until thematic saturation was reached, defined as the point at which no new substantive themes emerged from the data.

Qualitative data were analyzed using thematic analysis. This approach was chosen for its flexibility and suitability for identifying patterns across participant narratives. The analysis followed an iterative process that included data familiarization, initial coding, theme development, and theme refinement. Coding was conducted using qualitative analysis software to facilitate systematic organization and transparency. Both deductive codes derived from the research questions and inductive codes emerging from the data were applied. To enhance analytic rigor, coding decisions were documented and reviewed throughout the analysis process.

Integration of quantitative and qualitative findings occurred at the interpretation stage. Results from both strands were compared and synthesized to identify areas of convergence, complementarity, and divergence. Quantitative findings regarding empathy levels and humanities exposure were examined alongside qualitative insights into how and why humanities education may influence empathic development. This integrative process allowed the study to generate a more comprehensive understanding of medical humanities education than either method could provide independently.

Ethical considerations were addressed throughout the research process. Ethical approval was obtained from the relevant institutional review body prior to data collection. All participants received detailed information about the study and provided informed consent. Participation was voluntary, and anonymity and confidentiality were ensured through the use of non identifiable codes and secure data storage. Given the low risk nature of the study, no significant ethical concerns were anticipated; however, participants were informed of their right to withdraw at any time without consequence.

Overall, the methodological design of this study was structured to balance empirical rigor with contextual sensitivity. By integrating quantitative measurement with qualitative exploration under a pragmatic framework, the study aims to provide robust and actionable evidence regarding the role of medical humanities education in fostering empathy among Chinese medical students.

Data Analysis

This chapter reports the empirical findings of the study without interpretation. Explanatory analysis and theoretical integration are reserved for Chapter 5.

This chapter presents the empirical findings of the study based on the quantitative and qualitative data collected from medical students, faculty members, and administrators across

selected Chinese medical institutions. The analysis is structured to address the research objectives by first describing the sample characteristics and patterns of medical humanities education, followed by an examination of the statistical relationship between humanities exposure and student empathy. Qualitative findings are then presented to illuminate the institutional and pedagogical factors that shape the implementation and perceived impact of medical humanities education. The chapter concludes with an integrative synthesis that brings together quantitative and qualitative results to provide a coherent account of the observed patterns.

The presentation of results is organized to distinguish clearly between descriptive findings, statistical relationships, and explanatory qualitative insights. Quantitative analyses focus on identifying patterns and associations without interpretation, while qualitative analyses explore contextual mechanisms underlying these patterns. This structure ensures analytical clarity and prepares the foundation for interpretation and discussion in the subsequent chapter.

Sample Characteristics and Humanities Exposure

This section describes the demographic characteristics of the study sample and their exposure to medical humanities education. The purpose is to provide a factual overview of the participants and their learning background prior to subsequent statistical analysis. No interpretation or causal inference is offered in this section.

A total of 500 valid questionnaires were included in the quantitative analysis. Participants were undergraduate medical students enrolled in five medical universities and colleges located in different regions of China. The sample included students from all five academic years, with a higher proportion drawn from the middle and senior years of medical training. Table 4.1 presents the demographic characteristics of the participants. Gender distribution was relatively balanced, with female students accounting for a slightly higher proportion of the sample. Most respondents were in their third and fourth academic years, reflecting increased exposure to both clinical education and humanities-related coursework at these stages.

Table 4.1
Demographic Characteristics of Participants (n = 500)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	238	47.6
	Female	262	52.4
Year of Study	Year 1	39	7.8
	Year 2	108	21.6
	Year 3	164	32.8
	Year 4	152	30.4
	Year 5	37	7.4

Participants were also asked about their exposure to medical humanities education, including whether they had taken humanities-related courses and the number of such courses completed. The majority of respondents reported having participated in at least one medical humanities course during their undergraduate training.

As shown in Table 4.2, over four-fifths of students indicated prior exposure to medical humanities education. However, the depth of exposure varied considerably across the sample. While some students reported completing only one course, a smaller proportion reported sustained engagement through multiple courses.

Table 4.2
Exposure to Medical Humanities Education (n = 500)

Variable	Category	Frequency (n)	Percentage (%)
Taken Medical Humanities Courses	Yes	416	83.2
	No	84	16.8
Number of Courses Completed*	One course	190	45.7
	Two to three courses	138	33.2
	Four or more courses	88	21.1

*Percentages calculated among students who reported having taken medical humanities courses (n = 416).

To support subsequent statistical analysis, students' humanities learning experience was operationalized as a composite humanities exposure variable. This variable incorporated course participation, number of courses completed, and perceived level of curricular integration. Based on the composite score, students were categorized into three exposure levels: low, moderate, and high.

Table 4.3 summarizes the distribution of humanities exposure levels across the sample. Most students fell within the moderate exposure category, while approximately one-fifth were classified as having high exposure.

Table 4.3
Distribution of Humanities Exposure Levels (n = 500)

Exposure Level	Frequency (n)	Percentage (%)
Low exposure	128	25.6
Moderate exposure	256	51.2
High exposure	116	23.2

In summary, the sample comprised medical students with diverse demographic backgrounds and varying levels of exposure to medical humanities education. These characteristics provide the empirical foundation for the subsequent analysis of educational patterns and the statistical relationship between humanities exposure and empathy.

The humanities exposure index was constructed by assigning standardized scores to course participation, number of courses completed, and perceived curricular integration. Equal weighting was applied to each component. Cut off points for low, moderate, and high exposure categories were determined using tertile distribution of the composite scores to ensure balanced group sizes for statistical analysis.

Patterns of Medical Humanities Education

This section presents an overview of the patterns of medical humanities education reported by participating students. It focuses on the types of courses offered, the teaching methods employed, and the assessment strategies used across institutions. The findings are descriptive in nature and provide contextual background for subsequent analyses.

Participants who reported having taken medical humanities courses were asked to indicate the types of courses they had attended. The reported courses were grouped into major thematic categories commonly found in medical humanities curricula.

Table 4.4 summarizes the distribution of medical humanities course types. Medical ethics and doctor patient communication were the most frequently reported course categories, together accounting for nearly half of all humanities learning experiences. Courses related to history of medicine and literature based approaches were reported less frequently, while interdisciplinary and elective courses represented a smaller but notable proportion.

Table 4.4
Distribution of Medical Humanities Course Types (n = 495)

Course Type	Frequency (n)	Percentage (%)
Medical ethics	124	24.8
Doctor patient communication	113	22.6
History of medicine	78	15.6
Literature and medicine	64	12.8
Medical psychology	39	7.8
Health sociology or culture and medicine	26	5.2
Narrative medicine or film and health electives	51	10.2
Total	495	100.0

Students were also asked to report on the primary teaching methods used in their medical humanities courses. Multiple responses were permitted to reflect exposure to different instructional approaches.

As shown in Table 4.5, lecture-based instruction was the most commonly reported teaching method. Interactive approaches such as case-based learning and group discussion were also widely reported. Experiential methods including role play simulation and reflective writing were reported less frequently.

Table 4.5
Teaching Methods Used in Medical Humanities Courses

Teaching Method	Frequency (n)	Percentage (%)
Lecture based teaching	192	38.4
Case based learning	114	22.8
Group discussion	93	18.6
Role play or simulation	52	10.4
Reflective writing	49	9.8
Total	500	100.0

Assessment strategies used in medical humanities courses were also examined. Students reported the primary forms of evaluation employed in their coursework.
Table 4.6 presents the distribution of assessment methods. Written examinations and final essays were the most frequently reported assessment formats. Reflective journals and oral presentations were used less consistently, while group-based assessments and peer evaluation were reported by a smaller proportion of respondents.

Table 4.6
Assessment Strategies in Medical Humanities Courses

Assessment Method	Frequency (n)	Percentage (%)
Written examination	156	31.2
Final essay or term paper	114	22.8
Reflective journal or portfolio	79	15.8
Oral presentation	63	12.6
Group project or case study	47	9.4
Peer evaluation or participation	41	8.2
Total	500	100.0

Overall, the findings indicate that medical humanities education is delivered through a range of course formats, teaching approaches, and assessment strategies. Traditional lecture based instruction and summative assessment remain predominant, while interactive and reflective methods are present but less uniformly adopted across institutions.

Relationship between Medical Humanities Exposure and Empathy
This section presents the quantitative analysis examining the relationship between medical humanities exposure and empathy among medical students. The analysis focuses on descriptive statistics, correlation analysis, and regression modeling. The purpose is to determine whether a statistically significant association exists between students' exposure to medical humanities education and their reported empathy levels, and whether this association remains stable after controlling for demographic variables.

Empathy was measured using a composite score derived from ten Likert scale items assessing emotional understanding, perspective taking, and patient centered attitudes. The scale ranged from 1 to 5, with higher scores indicating greater empathy. Humanities exposure was operationalized as an ordinal index reflecting the extent of students' engagement with medical humanities courses, categorized into low, moderate, and high exposure levels.

Table 4.7 presents the descriptive statistics for empathy scores across the full sample. The mean empathy score was 3.89 with a standard deviation of 0.46, indicating a generally moderate to high level of self reported empathy among respondents. The distribution of scores approximated normality, with skewness and kurtosis values within acceptable ranges for parametric analysis.

Table 4.7
Descriptive Statistics for Empathy Scores (n = 500)

Statistic	Value
Mean	3.89
Median	3.91
Minimum	2.10
Maximum	4.95
Standard deviation	0.46
Skewness	-0.42
Kurtosis	0.37

To examine the bivariate relationship between humanities exposure and empathy, Pearson correlation analysis was conducted. Gender and year of study were included as additional variables to explore potential associations.

As shown in Table 4.8, humanities exposure was positively and significantly correlated with empathy ($r = 0.41$, $p < 0.01$). This indicates that higher levels of exposure to medical humanities education were associated with higher empathy scores. Gender was also positively correlated with empathy, while year of study showed a weak negative correlation.

Table 4.8
Pearson Correlation Matrix among Key Variables (n = 500)

Variable	1	2	3	4
1. Empathy	1			
2. Humanities exposure	0.41**	1		
3. Gender	0.28**	0.09	1	
4. Year of study	-0.12*	0.05	-0.03	1

Note. * $p < 0.05$, ** $p < 0.01$
To further assess whether humanities exposure independently predicted empathy, a multiple linear regression analysis was performed. Empathy served as the dependent variable, while humanities exposure was entered as the primary independent variable. Gender and year of study were included as control variables.

The overall regression model was statistically significant. As shown in Table 4.9, the model explained approximately 22.3 percent of the variance in empathy scores.

Table 4.9
Regression Model Summary for Empathy (n = 500)

Model statistic	Value
R	0.472
R^2	0.223
Adjusted R^2	0.218
Standard error of estimate	0.406
F	47.39
Significance	< 0.001

Table 4.10 presents the regression coefficients for each predictor. Humanities exposure emerged as a significant positive predictor of empathy. Gender also showed a significant effect, while year of study had a small but statistically significant negative association with empathy.

Table 4.10
Regression Coefficients Predicting Empathy

Predictor	B	Standard error	Beta	t	Significance
Constant	2.745	0.116		23.67	< 0.001
Humanities exposure	0.296	0.041	0.378	7.24	< 0.001
Gender	0.182	0.047	0.204	3.89	< 0.001
Year of study	-0.061	0.026	-0.097	-2.35	0.019

The regression results indicate that higher levels of humanities exposure were associated with higher empathy scores after controlling gender and year of study. The standardized beta coefficient suggests that humanities exposure was the strongest predictor in the model.
In summary, the quantitative analyses demonstrate a consistent and statistically significant relationship between exposure to medical humanities education and empathy among medical students. This association remained robust across both correlation and regression analyses, providing empirical support for the relationship under investigation.

Qualitative Findings on Institutional and Pedagogical Influences
Illustrative quotations are presented to support each theme and to demonstrate how analytic interpretations were grounded in participant narratives.
This section presents the qualitative findings addressing Research Question 2, which explores the institutional and pedagogical factors shaping the implementation of medical humanities education in Chinese medical schools. Drawing on semi structured interviews with faculty members, administrators, and medical students, the analysis focuses on identifying key structural mechanisms that influence curriculum design, teaching practice, and student engagement. Thematic analysis was conducted following the procedures outlined in Chapter 3, and the findings reported here represent the outcome of that analytic process.

Rather than providing an exhaustive presentation of all qualitative codes and subthemes, this section highlights the core thematic structures that emerged as most influential across institutional contexts. Particular attention is given to pedagogical and curricular challenges, which consistently appeared as a central organizing theme linking multiple institutional, cultural, and resource related factors. These challenges were identified across different regions and types of medical institutions, suggesting that they reflect systemic issues rather than isolated local conditions.

Figure 1 presents an integrated thematic network illustrating the relationships among the major themes derived from the qualitative analysis. The figure visualizes how pedagogical and curricular challenges occupy a central position within the broader institutional context, connecting to issues related to faculty capacity, assessment practices, institutional support, and cultural attitudes toward medical humanities education. The figure is intended as a representative illustration of the qualitative findings rather than a comprehensive mapping of all coded data.

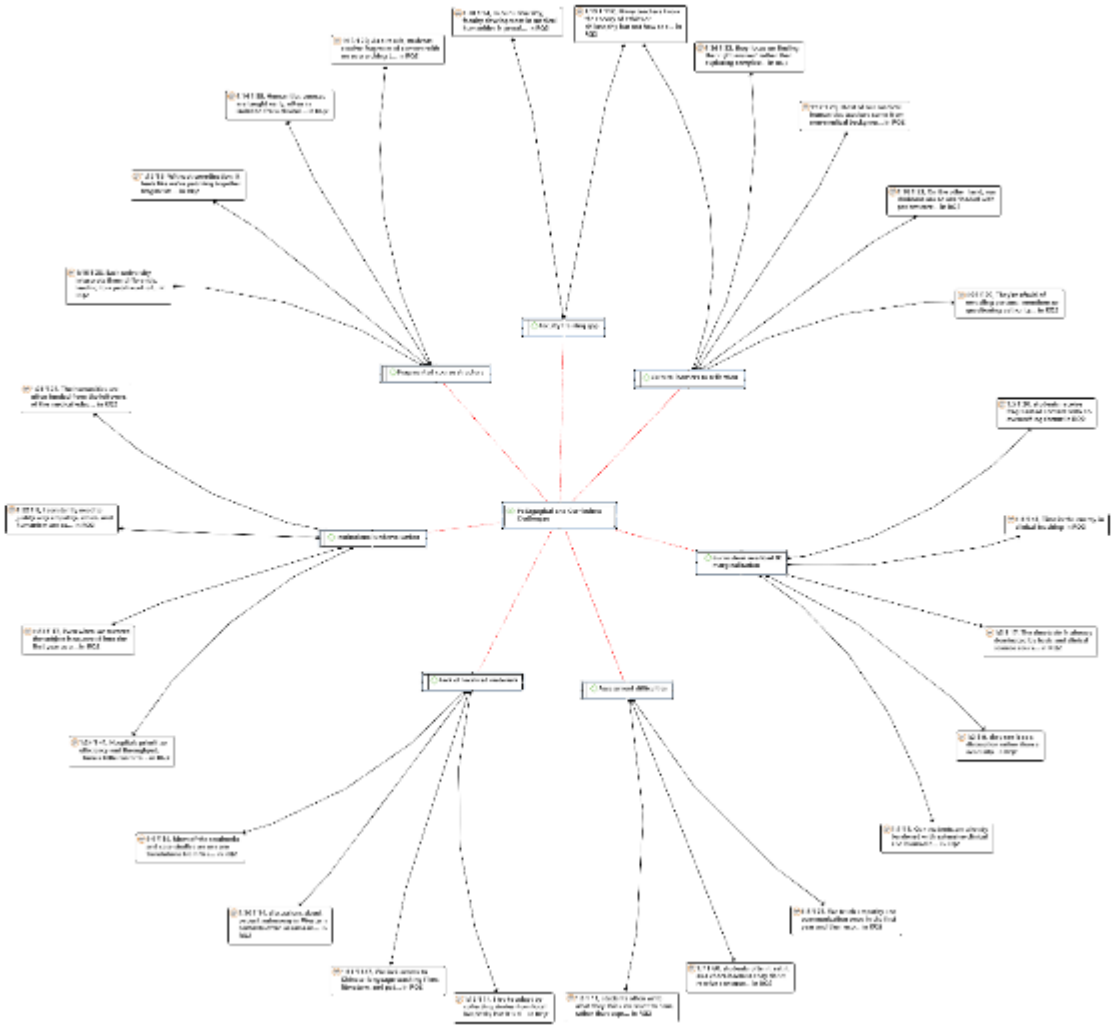

Figure 1 ATLAS.ti network diagram for “Pedagogical and Curriculum Challenges”

As shown in Figure 1, pedagogical and curricular challenges function as a focal mechanism through which multiple constraints converge. Participants frequently described humanities curricula as fragmented and marginal within the overall medical program, often positioned as supplementary or elective components rather than integrated elements of professional training. Courses were commonly concentrated in early academic years and delivered independently of clinical education, which limited their perceived relevance and long term impact. Several faculty members noted that this lack of longitudinal integration weakened students’ ability to connect humanistic concepts with real clinical encounters.

Assessment practices emerged as a closely related concern. Interview participants reported difficulties in evaluating learning outcomes associated with empathy, ethical reflection, and professional development. Conventional assessment formats such as written examinations or short reflective assignments were often perceived as insufficient for capturing the depth of students’ engagement. In the absence of clear evaluation criteria and formative feedback mechanisms, both students and instructors tended to treat humanities assessments as procedural requirements rather than meaningful learning opportunities.

Faculty and resource constraints further shaped pedagogical practices. Many institutions relied on part time instructors or faculty members without formal training in medical

humanities pedagogy. Participants described limited opportunities for interdisciplinary collaboration between clinical educators and humanities scholars, which constrained the development of contextually grounded teaching materials. The lack of stable institutional support and professional recognition for humanities teaching also contributed to variability in instructional quality across institutions.

Institutional and structural factors reinforced these pedagogical challenges. Participants highlighted rigid curriculum approval processes, centralized governance structures, and performance evaluation systems that prioritized biomedical research output over educational innovation. Although policy documents often emphasized the importance of cultivating humanistic professionalism, participants noted that such commitments were rarely translated into concrete resource allocation or curricular reform. As a result, medical humanities education frequently remained peripheral to core institutional priorities.

Cultural and attitudinal barriers intersected with these structural conditions. Interviewees described a prevailing educational culture that values technical competence, efficiency, and examination performance, sometimes at the expense of reflective and emotional learning. In such contexts, students often approached humanities courses instrumentally, focusing on credit acquisition rather than personal or professional development. Faculty members observed that hierarchical norms and limited space for open discussion further constrained meaningful engagement with ethical and emotional dimensions of medical practice.

Taken together, the qualitative findings indicate that the implementation of medical humanities education is shaped by an interconnected set of pedagogical, institutional, and cultural mechanisms. Pedagogical and curricular challenges occupy a central position within this system, mediating the influence of faculty capacity, assessment practices, institutional governance, and cultural expectations. The thematic structure presented in Figure 1 provides a synthesized representation of these relationships, offering insight into how structural conditions shape educational practice beyond individual classrooms.

This qualitative analysis complements the quantitative findings reported earlier in this chapter by elucidating the mechanisms underlying observed statistical patterns. While the quantitative results demonstrate a positive association between humanities exposure and student empathy, the qualitative findings clarify why such effects vary across institutional contexts. Specifically, they suggest that the impact of humanities education depends not only on course availability but also on curricular coherence, pedagogical design, and institutional support. These insights provide an essential foundation for the integrative discussion presented in the following section.

Integration of Findings

This section integrates the quantitative and qualitative findings presented in Sections 4.3 and 4.4 to provide a coherent interpretation of how medical humanities education relates to empathy development among Chinese medical students. While the quantitative analysis establishes the existence, strength, and stability of statistical associations, the qualitative findings illuminate the institutional and pedagogical mechanisms through which these associations are produced and shaped in practice. Together, the two strands of evidence offer

a complementary and mutually reinforcing account of the role of medical humanities in medical education.

The quantitative results demonstrated a consistent and statistically significant relationship between exposure to medical humanities education and student empathy. Descriptive analysis indicated that students with higher levels of humanities exposure reported higher mean empathy scores. Correlation analysis further showed a moderate positive association between humanities exposure and empathy, and this relationship remained robust in regression models controlling for gender and year of study. These findings suggest that engagement with medical humanities is not merely correlated with empathy at a superficial level, but represents an independent predictor of empathic orientation within the sampled population.

However, the quantitative findings alone do not explain why the strength of this relationship varies across institutional contexts or why humanities exposure does not increase uniformly with academic progression. The qualitative findings presented in Section 4.4 address these questions by revealing the structural conditions under which humanities education is implemented and experienced. Interview data indicate that the impact of humanities education depends critically on how courses are designed, integrated, and supported within the broader medical curriculum.

Specifically, the qualitative analysis identified pedagogical and curricular challenges as a central mechanism influencing the effectiveness of humanities education. Fragmented course structures, limited longitudinal integration, and weak connections to clinical practice were shown to constrain students' ability to translate humanistic learning into sustained empathic engagement. These structural limitations help explain why increased exposure to humanities courses does not automatically result in proportional gains in empathy across all stages of training, as observed in the quantitative data.

Assessment practices further mediate the relationship between humanities exposure and empathy development. While the quantitative analysis treats humanities exposure as an index of participation and curricular integration, the qualitative findings suggest that the depth of student engagement is shaped by how learning outcomes are evaluated. In contexts where assessment relies primarily on summative or procedural tasks, students may comply with course requirements without developing reflective or emotional competencies. This dynamic offers a plausible explanation for the moderate, rather than strong, magnitude of the statistical association observed in Section 4.3.

Faculty capacity and institutional support also provide important contextual explanations for the quantitative patterns. The regression analysis indicated that humanities exposure remains a significant predictor of empathy even after controlling for demographic variables, suggesting that educational factors exert an influence beyond individual characteristics. Qualitative findings clarify that this influence is strengthened in institutions with dedicated faculty, interdisciplinary collaboration, and administrative recognition of humanities teaching. Conversely, resource constraints and limited professional incentives weaken the potential impact of humanities education, contributing to variability in outcomes across institutions.

Cultural and attitudinal factors identified in the qualitative analysis further contextualize the quantitative findings. The slight decline in empathy across academic years observed in the quantitative results aligns with qualitative accounts of increasing clinical workload, efficiency driven training environments, and hierarchical professional norms. Within such contexts, humanities education may function as a protective but insufficient counterbalance to broader structural pressures. This interpretation helps reconcile the coexistence of a positive association between humanities exposure and empathy with an overall tendency toward empathic erosion during later stages of medical training.

Taken together, the integrated findings indicate that medical humanities education contributes to empathy development through a complex interaction between curricular exposure and institutional context. The quantitative evidence establishes that humanities education matters, while the qualitative evidence clarifies the conditions under which it matters most. Empathy development is not solely a function of course participation, but is shaped by pedagogical coherence, assessment design, faculty engagement, and institutional culture.

This integration underscores the value of a mixed methods approach for examining educational outcomes that are both measurable and context dependent. By linking statistical relationships with qualitative mechanisms, the findings move beyond demonstration of effect to explanation of process. This combined perspective provides a more nuanced understanding of how medical humanities education can be strengthened to support the formation of empathic and professionally grounded physicians.

Discussion and Conclusion

This chapter interprets the findings of the study in relation to existing literature on medical humanities education and empathy development. The discussion is organized around the research questions and integrates quantitative and qualitative results to explain how medical humanities education contributes to empathy development within Chinese medical training contexts.

This chapter discusses the findings of the study in relation to existing literature on medical humanities education and empathy development, and draws overall conclusions regarding the role of humanities education in contemporary Chinese medical training. By integrating the quantitative and qualitative results presented in Chapter 4 with the theoretical and empirical perspectives reviewed in Chapter 2, this chapter situates the study's contributions within broader debates in medical education and identifies implications for educational practice and future research.

Medical Humanities Exposure and Empathy Development

A central finding of this study is the statistically significant and stable association between medical humanities exposure and empathy among medical students. This result aligns with a growing body of international literature suggesting that humanities based education contributes to emotional awareness, ethical sensitivity, and patient centered attitudes. Previous studies reviewed in Chapter 2 have reported similar associations between participation in humanities courses and higher empathy scores, particularly when such courses emphasize reflection, narrative engagement, and ethical discussion. The present

study extends this literature by providing empirical evidence from a Chinese context, where systematic quantitative analyses of humanities education outcomes remain relatively limited. At the same time, the magnitude and pattern of the observed relationship warrant careful interpretation. While humanities exposure emerged as an independent predictor of empathy, the association was moderate rather than strong, and empathy levels showed a slight decline across academic years. These findings resonate with prior research discussed in Chapter 2, which has documented empathy erosion during medical training, often attributed to clinical workload, performance pressure, and the dominance of biomedical paradigms. The current results suggest that humanities education may mitigate, but not fully counteract, these broader structural influences.

Institutional and Pedagogical Influences on Humanities Education

The qualitative findings provide important insight into why the impact of humanities education varies across institutional contexts. Consistent with earlier studies highlighting implementation gaps between policy rhetoric and educational practice, participants described fragmented curricula, limited longitudinal integration, and weak alignment between humanities teaching and clinical training. These structural conditions help explain why increased exposure to humanities courses does not automatically translate into sustained empathic development. The findings support arguments in the literature that humanities education is most effective when embedded coherently within the medical curriculum rather than delivered as isolated or introductory modules.

Assessment practices emerged as a particularly salient mediating factor. As noted in Chapter 2, several scholars have questioned the reliance on traditional summative assessment methods for evaluating humanistic competencies. The present study reinforces these concerns by showing that procedural or minimally reflective assessments may limit students' engagement with the deeper emotional and ethical dimensions of humanities learning. When assessment prioritizes compliance over reflection, the educational potential of humanities courses is constrained, even when course availability is relatively high.

Faculty capacity and institutional support further shape the effectiveness of humanities education. Previous literature has emphasized the importance of interdisciplinary collaboration and faculty development in sustaining humanities programs. The qualitative findings of this study echo these conclusions, revealing that shortages of trained instructors, limited professional recognition, and weak incentive structures undermine pedagogical innovation. In institutions where humanities teaching lacks institutional legitimacy, the influence of such education on student development remains uneven and fragile.

Cultural Context and Empathy Erosion

Cultural and attitudinal factors also play a critical role in mediating educational outcomes. As discussed in Chapter 2, the cultural context of medical education in China is characterized by strong emphasis on technical competence, efficiency, and examination performance. The qualitative findings demonstrate how these values shape students' instrumental engagement with humanities courses and constrain opportunities for emotional expression and moral dialogue. Within such environments, humanities education may function as a countervailing influence, but its impact is moderated by entrenched professional norms and hidden curricula.

Taken together, the findings of this study suggest that the relationship between medical humanities education and empathy development is both real and context dependent. Humanities education contributes to empathy not simply through course exposure, but through the quality of curricular integration, pedagogical design, assessment practices, and institutional culture. This interpretation supports a growing consensus in the literature that empathy is not an individual trait cultivated in isolation, but an educational outcome shaped by systemic conditions within medical training environments.

Implications for Medical Education

From a methodological perspective, the mixed methods design employed in this study strengthens the validity of these conclusions. Quantitative analyses establish the existence and robustness of statistical associations, while qualitative findings illuminate the mechanisms underlying these patterns. By linking numerical trends with institutional and pedagogical processes, the study moves beyond descriptive correlation to offer a more explanatory account of how humanities education operates in practice. This integrated approach responds directly to calls in the literature for more context sensitive and methodologically plural research on medical humanities education.

Several practical implications emerge from these findings. First, medical schools seeking to enhance empathy through humanities education should prioritize longitudinal integration rather than expanding course numbers alone. Second, assessment practices should be aligned with the reflective and interpretive goals of humanities learning, incorporating formative feedback and qualitative evaluation where possible. Third, sustained institutional investment in faculty development and interdisciplinary collaboration is essential for translating policy commitments into educational impact. Finally, efforts to strengthen humanities education should engage with cultural norms and professional identities, recognizing that empathy development requires both curricular and cultural change.

Limitations and Directions for Future Research

This study has limitations that should be acknowledged. The cross sectional nature of the quantitative data limits causal inference, and empathy was measured through self reported instruments rather than behavioral indicators. Additionally, while the qualitative sample captured diverse institutional perspectives, it cannot represent all forms of medical education in China. Future research could address these limitations through longitudinal designs, multi institutional comparative studies, and the inclusion of observational or performance based measures of empathy.

In conclusion, this study demonstrates that medical humanities education is positively associated with empathy among Chinese medical students, while also revealing that its effectiveness is shaped by institutional structure, pedagogical design, and cultural context. Humanities education functions most effectively when it is coherently integrated, reflectively assessed, and institutionally supported. By adopting a mixed methods approach, this study contributes context specific empirical evidence to international discussions on humanistic medical education and provides a foundation for future curricular reform aimed at cultivating empathic and professionally grounded physicians.

In conclusion, this study demonstrates that medical humanities education is positively associated with empathy among Chinese medical students, while also revealing that its effectiveness is shaped by institutional structure, pedagogical design, and cultural context. Humanities education functions most effectively when it is coherently integrated, reflectively assessed, and institutionally supported. By adopting a mixed methods approach, this study contributes context specific empirical evidence to international discussions on humanistic medical education and provides a foundation for future curricular reform aimed at cultivating empathic and professionally grounded physicians.

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