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# A study of the correlation between residents' humanistic care skills and their level of emotional intelligence—A cross-sectional survey

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## Abstract

**Background** There is variability in the structure of junior doctors' knowledge of humanistic medicine. The level of residents' emotional intelligence affects their professional development and the doctor-patient relationship. Currently, there is a paucity of research examining the humanistic competence and emotional intelligence of medical residents, both domestically and internationally. The primary objective of this study was to scrutinize the prevailing status of residents' humanistic competence and emotional intelligence levels, aiming to assess the correlation between humanistic competence and emotional intelligence.

**Methods** A cross-sectional survey using the Demographic Characteristics Questionnaire, the Humanistic Care Competence Scale, and the Emotional Intelligence Scale was conducted in September 2022 among residents of a tertiary general hospital in Sichuan Province. The relationship between humanistic care competence scores and emotional intelligence scores among residents was analyzed using Pearson correlation analysis and multiple linear regression analysis.

**Results** The mean score of residents' humanistic care competence was  $188.82 \pm 20.80$ , and the mean score of emotional intelligence was  $87.08 \pm 13.49$ . The Pearson correlation results demonstrated a significant correlation ( $r = 0.400$ ,  $p = 0.000$ ) between the level of emotional intelligence and humanistic care competence. The results of multiple linear regression analysis indicated that self-emotional appraisal, emotional appraisal of others, emotional control, emotional use, and school community work experience independently predicted humanistic care competence.

**Conclusion** The scores for residents' humanistic care competence were notably low, influenced by a multitude of factors that also exhibited varying levels of impact on emotional intelligence development. Emotional intelligence was positively associated with humanistic care competence. Emotional intelligence is an important consideration

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in the development, implementation, and evaluation of humanistic care interventions. Residency programs should provide education and training in humanistic competencies to improve residents' levels of emotional intelligence and promote the overall health of society.

**Keywords** Residents, Emotional Intelligence Level, Humanistic Care competence, Correlation study

## Background

The residency period is the first few years after medical students graduate from university, which is a critical period for training qualified physicians. Residents are the main force responsible for a large amount of clinical work in hospitals [1]. For medical school graduates, residency training is a critical stage for them to acquire knowledge and skills [2]. Medical experts at home and abroad believe that the standardized residency training is very important for building a high-quality medical team and improving the overall medical service level [3]. In Europe and the United States, residency training has been developed for hundreds of years and has formed a relatively complete standardized management system [4]. In the last decade, China has been gradually promoting residency training throughout the country [5]. Residency training is a mandatory part of medical education and an important process in the career path of physicians [6]. It is important to ensure and improve the clinical skills and competence of residents through standardized training of residents. Practical experience in China proves that residency training has become the main mode of post-graduate education for medical students [7]. Residency training allows residents to be competent in skills in a variety of clinical settings [8].

Humanistic care is about listening to patients' needs and wishes, understanding their emotions and feeling the value of life [9]. Humanistic care is a necessary skill and psychological quality for medical staff, which not only improves the quality of medical services and patient satisfaction, but also improves the physical and mental health of patients and influences medical outcomes [10]. In recent years, some researchers have suggested that humanistic care can have a positive impact on patients' postoperative recovery and quality of life [11–13]. Numerous factors influence the ability to provide humanistic care, such as individual personality, social support, psychological characteristics, and work [14]. Most of the existing studies have been conducted on nurses [15] or nursing students [13], but there is a paucity of research on the humanistic care competencies of residents [16].

Emotional intelligence is the ability of individuals to monitor their own and others' emotions and use this information to guide their thoughts and behaviour [17]. Some studies have shown that levels of emotional intelligence are negatively correlated with anxiety, stress and depression [18]. Developing emotional intelligence can improve the experience of inpatients [19]. Some studies

on nurses have shown that the level of emotional intelligence affects well-being at work [20] and can also have a positive or negative impact on nursing behaviour [21]. Healthcare workers with high emotional intelligence are better able to communicate with patients or their families and to gain support and understanding from patients [22]. Workers with negative emotions have a lower sense of well-being at work than those with positive emotions [23].

We hypothesized that the level of emotional intelligence is a positive predictor of humanistic caring competence. Physicians with high levels of emotional intelligence have high humanistic caring competence. It has been shown that the positive orientation of an individual's behavior is influenced by a positive mental disposition. Individuals' ability to maintain a positive and optimistic mindset in times of confusion or adversity has a positive effect on the caring behavior of medical workers. Humanistic caring ability is a relevant factor affecting doctor-patient communication and problem solving ability. The importance of humanistic caring in modern medicine has been recognized worldwide. Therefore, it is important to study residents' humanistic care ability and emotional intelligence level, and to develop residents' emotional management ability to improve their professional quality and competence in clinical work. This study investigated the humanistic caring ability and emotional intelligence level of residents in an internship and standardised training in a tertiary care general hospital, and explored the correlation between the humanistic caring ability and emotional intelligence level of residents to provide a reference for the implementation of humanistic care interventions.

## Methods

### Design, participants, and procedures

The study conducted a cross-sectional survey at a resident standardized training base in Panzhihua City, Sichuan Province, China. The target population recruited for the study was residents who participated in standardized training at the Panzhihua City Central Hospital Residency Standardized Training Base. The study used a simple sampling method and was conducted by means of a conference, which the researcher convened after the residents' clinical practice had begun to elucidate the details of the study through face-to-face communication. Participants volunteered to take part in the study. The investigators were apprised of the study's significance

and formally endorsed their commitment by signing an informed consent form. This document explicitly specified that the survey would be conducted anonymously, personal information would be safeguarded, and participants retained the right to choose whether to complete the questionnaire. All data were exclusively coded for research purposes and maintained under the purview of the research team. Ethical approval was deemed unnecessary for this study due to the absence of associated risks, and all participant responses were treated with the utmost confidentiality.

The researchers created a standardized questionnaire that contained instructions and specifications for completion. To prevent loss of data, all items on the questionnaire were mandatory choices. Respondents filled out the questionnaire anonymously using the WeChat platform, which is one of the most widely used social networking software in China. Respondents were not required to provide their personally identifiable information (name, ID or contact information). To avoid duplication, each telephone IP address could only access and complete the survey once. During the survey, participants were informed of the purpose and significance of the study and were asked to complete the questionnaire voluntarily. Completion of the questionnaire was considered to be the respondent's verbal consent to participate in the study. The questionnaire was created by using the online questionnaire tool "Questionnaire Star". The researcher can only access the questionnaire data by logging into their account through the password, thus ensuring the anonymity and confidentiality of the survey.

### Measurements

The study used the Demographic Characteristics Questionnaire (DQ), the Competence in Caring Ability Inventory (CAI) and the Emotional Intelligence Inventory (WLEIS). The Demographic Characteristics Questionnaire was developed by the researcher to obtain information on socio-demographic variables such as age, gender, household registration, families with one child, level of education, time spent in clinical practice, experience in school clubs, experience in voluntary activities and whether they had received training in humanistic care. We have included the following questionnaires as attachments to ensure clarity and reproducibility of the study: Demographic Characteristics Questionnaire, Humanistic Care Competence Scale, and Emotional Intelligence Scale (Supplementary material 1).

The CAI serves as a self-reported measurement tool employed to assess an individual's capacity for caregiving. This instrument was devised by Ngozi Nkongho [24]. The scale has passed various reliability and validity tests and has been used in several academic and clinical settings in China and around the world. The translation

of the scale into Chinese by Yulian Ma, a distinguished Chinese scholar, was accompanied by a comprehensive demonstration of its robust psychometric properties. The Cronbach's alpha was 0.919, the content validity index was 0.957, and the score ranged from 37 to 259. The residents can be measured using the CAI score. The higher the CAI score, the higher level of residents. The scale comprises 37 items, categorized into three distinct dimensions: knowing (pertaining to self-awareness, understanding of others, and familiarity with one's environment; 14 items), courage (assessing the ability to navigate unfamiliar situations; 13 items), and patience (evaluating endurance and resilience; 10 items). 13 items were reverse scored. The total score of the CAI ranges from 37 to 259, with the cognitive dimension ranging from 14 to 98, the courage dimension from 13 to 91 and the patience dimension from 10 to 70. Higher total scores indicate greater caring capacity. The normative scores for this scale are: scores above 220.3 indicate high levels of care giving; scores between 220.3 and 203.1 are moderate; scores below 203.1 indicate low levels of care giving.

The WLEIS originated in Hong Kong in 2002 under the authorship of Wong [25]. Subsequently, the scale has garnered widespread utilization across numerous countries. Cross-cultural investigations employing the WLEIS have been conducted in various nations, including Portugal, Japan, and South Korea. Additionally, the Chinese iteration of the WLEIS finds extensive application in mainland China. The Emotional Intelligence Scale comprises a total of 16 items, encompassing dimensions such as "self-emotional evaluation," "others' emotional evaluation," "emotional control," and additional aspects of "others' emotional evaluation." Each dimension contains 4 items and is scored on a 7-point Likert scale, where '1' means 'strongly disagree' and '7' means 'strongly agree.' The scores ranged from 16 to 112, with higher scores indicating higher emotional intelligence. Regarding the internal consistency of each dimension, Cronbach's alpha ranges between 0.76 and 0.89 and scores range between 16 and 112 [26]. Thus, emotional intelligence can be reliably measured using WLEIS scores. The higher the WLEIS score, the higher the level of emotional intelligence.

The Chinese version of our research questionnaire was used. We used an expert review method to assess the face validity of our questionnaire, and six experts with relevant experience evaluated the reasonableness of the questionnaire. The results showed that 91.80% of all items were rated as "reasonable" by the experts. The experts emphasized the clarity of language in some of the questions in the questionnaire and made some suggestions to optimize the reasonableness of the questionnaire. Although face validity provides some initial insights into the initial design of the questionnaire, we also need to recognize its subjectivity and the limitations of relying on

**Table 1** Resident caring ability inventory score

| Dimension  | Entries Number | Total Score    | Average Score |
|------------|----------------|----------------|---------------|
| Cognition  | 14             | 79.92 ± 10.04  | 5.71 ± 0.71   |
| Courage    | 13             | 48.62 ± 18.11  | 3.74 ± 1.39   |
| Patience   | 10             | 60.28 ± 6.29   | 6.02 ± 0.62   |
| <b>CAI</b> | 37             | 188.82 ± 20.80 | 5.10 ± 0.56   |

**Table 2** Resident emotional intelligence scores

| Dimension                      | Entries number | Total Score   | Average Score |
|--------------------------------|----------------|---------------|---------------|
| Self-Emotional Assessment      | 4              | 22.29 ± 3.81  | 5.57 ± 0.95   |
| Emotional Assessment of Others | 4              | 21.64 ± 3.84  | 5.41 ± 0.96   |
| Emotion Control                | 4              | 21.64 ± 3.50  | 5.41 ± 0.87   |
| Emotional Application          | 4              | 21.51 ± 3.77  | 5.37 ± 0.94   |
| <b>WLEIS</b>                   | 16             | 87.08 ± 13.49 | 5.44 ± 0.84   |

subjective judgments of experts. Therefore, we asked six experts to evaluate the content validity index and content validity ratios of the scale in order to comprehensively assess the validity of the questionnaire. The six experts consisted of two experts in clinical medicine, two experts in psychology, one expert in pedagogy, and one expert in statistics; the academic composition was: two PhDs, and four master's degree holders; and the title composition was: five senior, and one intermediate. The content validity index of the scale was 0.830 for the I-CVI and 0.852 for the S-CVI. The questionnaire consisted of 61 items and the content validity ratio was 17.67.

#### Data analysis

The study was conducted on residents recruited in 2021 at Panzhihua Central Hospital, with specialties including internal medicine, surgery, obstetrics and gynecology, and pediatrics. With 1,956 beds and nearly 2,000 staff, Panzhihua Central Hospital trains more than 300 residents each year and is the largest tertiary A general hospital in the Panzhihua region of western China.

Data were analysed using SPSS 26.0 statistical software, with differences considered statistically significant at  $P < 0.05$ . Before analyzing the data, we excluded the answers that were suspected to be untrue (there were obvious logical contradictions, and all the answers to different questions were the same). The study used descriptive statistics of residents' demographic characteristics, humanistic care competencies and emotional intelligence levels. Pearson correlation analysis was used to determine the relationship between humanistic care competencies and emotional intelligence scores. Multiple linear regression analysis was used to analyse the relationship between potential influences (i.e. socio-demographic characteristics, level of emotional intelligence) and the dependent variable, humanistic care competencies.

## Results

### Sociodemographic characteristics of the residents

In this study, a total of 236 residents actively participated. The mean age of the participating residents was  $25 \pm 1.357$  years, comprising 110 (46.6%) males and 126 (53.4%) females. Of the respondents, 186 (78.8%) held a rural household registration, and 173 (73.3%) reported having more than one child in their household. In terms of educational attainment, 177 (75%) had obtained a bachelor's degree, while 11 (4.7%) had achieved a post-graduate degree. Regarding the duration of clinical practice, 51 (21.6%) residents had less than 1 year of clinical experience, 95 (40.3%) had 1–2 years of clinical practice, 76 (32.2%) had 2–3 years of clinical practice, 8 (3.4%) had 3–4 years of clinical practice, and 6 (2.5%) had more than 4 years of clinical practice. A significant majority, 190 (80.5%) of the residents, had experience working in clubs during their academic years, 191 (80.9%) had volunteering experience, and 156 (66.1%) had participated in training related to humanistic care.

### Resident caring ability inventory score

The cumulative score for humanistic care capacity among the 236 participating residents in this study was  $188.82 \pm 20.80$ . Notably, patience attained the highest score of  $6.02 \pm 0.62$ , closely succeeded by cognition with a score of  $5.71 \pm 0.71$ . Conversely, courage received the lowest score of  $3.74 \pm 1.39$ . The detailed breakdown of resident humanistic care competency scores is presented in Table 1.

### Resident emotional intelligence score

The total score of emotional intelligence level of the 236 residents in this study was  $87.08 \pm 13.49$ . Among them, the highest score of self-emotional assessment was  $5.57 \pm 0.95$ . The lowest score for the affective app was  $5.37 \pm 0.94$ . The detailed breakdown of emotional intelligence levels among the residents is shown in Table 2.

**Table 3** Correlation between humanistic care ability and emotional intelligence level(r)

| Dimension                      | Cognition | Courage | Patience | CAI   | Self-Emotional Assessment | Emotional Assessment of Others | Emotion Control | Emotional Application | WLEIS  |
|--------------------------------|-----------|---------|----------|-------|---------------------------|--------------------------------|-----------------|-----------------------|--------|
| Cognition                      | 1         | -0.242  | 0.803    | 0.514 | 0.771                     | 0.755                          | 0.762           | 0.747                 | 0.838  |
| Courage                        | -0.242    | 1       | -0.215   | 0.689 | -0.183                    | -0.22                          | -0.271          | -0.226                | -0.248 |
| Patience                       | 0.803     | -0.215  | 1        | 0.502 | 0.628                     | 0.66                           | 0.624           | 0.617                 | 0.699  |
| CAI                            | 0.514     | 0.689   | 0.502    | 1     | 0.402                     | 0.373                          | 0.32            | 0.35                  | 0.4    |
| Self-Emotional Assessment      | 0.771     | -0.183  | 0.628    | 0.402 | 1                         | 0.727                          | 0.811           | 0.722                 | 0.901  |
| Emotional Assessment of Others | 0.755     | -0.22   | 0.66     | 0.373 | 0.727                     | 1                              | 0.767           | 0.691                 | 0.882  |
| Emotion Control                | 0.762     | -0.271  | 0.624    | 0.32  | 0.811                     | 0.767                          | 1               | 0.842                 | 0.942  |
| Emotional Application          | 0.747     | -0.226  | 0.617    | 0.35  | 0.722                     | 0.691                          | 0.842           | 1                     | 0.898  |
| WLEIS                          | 0.838     | -0.248  | 0.699    | 0.4   | 0.901                     | 0.882                          | 0.942           | 0.898                 | 1      |

**Table 4** Multiple Linear regression analysis of factors influencing residents' competence in Humanistic Care (N=236)

| Influencing Factors              | B      | SE    | Beta   | t      | P     |
|----------------------------------|--------|-------|--------|--------|-------|
| Self-assessment of emotions      | 1.817  | 0.565 | 0.333  | 3.214  | 0.001 |
| Emotional appraisal by others    | 1.123  | 0.512 | 0.207  | 2.192  | 0.029 |
| Emotion Control                  | -1.814 | 0.801 | -0.305 | -2.265 | 0.024 |
| Emotional application            | 0.97   | 0.601 | 0.176  | 1.614  | 0.108 |
| School community work experience | 10.449 | 3.133 | 0.199  | 3.335  | 0.001 |

### Relationship between humanistic care competencies and emotional intelligence levels

In the study, emotional intelligence levels were positively correlated with humanistic care competencies ( $r=0.400$ ,  $p=0.000$ ). The cognitive and patience dimensions of humanistic caring were positively and significantly correlated with levels of emotional intelligence and each of its dimensions. The courage dimension of human caring competence was negatively and significantly correlated with emotional intelligence and each of its dimensions. The results of the correlations between human caring competencies and levels of emotional intelligence are shown in Table 3.

### Analysis of factors associated with humanistic care competencies

The analysis of factors associated with residents' humanistic care competencies was carried out using the socio-demographic characteristics of the residents and the four dimensions of emotional intelligence (self-emotional appraisal, emotional appraisal of others, emotional control and emotional use) as independent variables in a multiple linear regression of humanistic care competencies. 0.001), emotional appraisal of others ( $P=0.029$ ), emotional control ( $P=0.024$ ), emotional use ( $P=0.108$ ) and experience of working in the school community ( $P=0.001$ ) were independent predictors of humanistic competence. People with good emotion management skills were more likely to have better humanistic care skills. Those with good emotional control skills were less likely to have humanistic competence. Of these, sociodemographic characteristics had the greatest predictive

power for humanistic care competencies. Multiple linear regression analysis of factors affecting residents were shown in Table 4.

## Discussion

### Current status of residents' caring competence and emotional intelligence levels

The study examined the factors that may influence residents' humanistic care competencies through a questionnaire that described their humanistic care competencies and emotional intelligence levels. The mean (standard deviation) score for humanistic care competencies among the 236 residents surveyed was 188.82 (20.80). The humanistic caregiving competency scores in our study were higher than the scores of  $184.63 \pm 19.88$  in a previous study conducted in China [27]. This may be because humanistic care education has received more attention in recent years, with many universities offering humanistic care courses and residents' humanistic care skills being improved [28]. Some studies have also shown that internships are positively correlated with residents' humanistic care competencies and that residents' humanistic care competencies improve after internships. It has been suggested that the key to improving humanistic competencies is to improve care throughout the health care system [29], for example by using appropriate teaching concepts for caring education and helping students to improve their caring competencies in the teaching process. The study analyzed the dimensions of residents' humanistic caring ability, and the highest score among the 3 dimensions was "patience" (86.11%), followed by cognition (81.55%), and finally courage (61.54%). This result may



be related to the fact that at the present stage of China's standardized residency training education focuses on theoretical education and the dissemination of health knowledge. The reason for the lowest score of "courage" (61.54%) among all dimensions may be related to the fact that the respondents of this study are residents who have just entered the clinic and lack the practice of "courage". On the other hand, humanities teaching in China is still based on the classroom lecture system, with classroom lectures as the basic form of teaching and a lack of practical and experiential links, which results in the residents' high scores in the theoretical knowledge of humanities and insufficient ability to solve practical clinical problems. The results of the study showed that the mean (standard deviation) of the emotional intelligence level of the surveyed residents was 87.08 (13.49) and the score index was 77.75%, which is higher than the results of Suzanne Nightingale [30] who used this scale to investigate the emotional intelligence of secondary school students, which may be related to the fact that the respondents in this study had a higher age and education level. Beryl Mansel et al. [31] investigated the emotional intelligence of nurses and found that the scores of emotional intelligence increased with the increase of age, and that age and emotional intelligence were positive. Phillips et al.'s [32] survey on the emotional intelligence of nurse managers showed that the group with a bachelor's degree scored significantly higher on "emotional recognition" than the group with a college degree or less.

#### **Residents' level of emotional intelligence is positively associated with humanistic care competence**

Emotional intelligence refers to a kind of social wisdom that an individual has to recognize and control oneself and others' emotions, and can use this information to guide their thinking and actions, reflecting the ability of people's feelings, understand, use, express, control and regulate self and others' emotions. The higher the emotional intelligence, the more sensitive to the needs of others. Residents' humanistic care competence was positively correlated with emotional intelligence ( $P < 0.00$ ). Cognition and patience were highly correlated with emotional intelligence, with correlation coefficients of 0.838 and 0.699, respectively ( $P < 0.00$ ). Courage was negatively correlated with emotional intelligence, with a correlation coefficient of -0.248 ( $P < 0.00$ ). Residents with high emotional intelligence are able to identify patients' needs through keen observation, and at the same time are able to quickly sense patients' physical and mental pain, and meet their physical and mental needs in the interests of the patients, thereby alleviating their suffering. Residents with high emotional intelligence are able to control their emotions rationally, observe changes in the patient's condition and mood, and try their best to

help the patient solve his or her problems and meet his or her needs. The higher the score of emotional intelligence level of the residents, the stronger the humanistic care ability, in line with a study by Ma Jingjing et al. 2022 [33]. Among the factors measured by emotional intelligence levels, those who can objectively self-evaluate their emotions, assess the emotions of others, and control and apply their emotions appropriately have higher levels of emotional intelligence and demonstrate higher emotional intelligence in learning and life. Highly emotionally intelligent healthcare professionals have lower levels of job burnout and are more conducive to a harmonious doctor-patient relationship [34]. Of the dimensions of emotional intelligence, self-emotional ratings correlated most strongly with humanistic care competencies ( $r = 0.402$ ,  $p = 0.000$ ). A stable mood and high work ethic have a positive appeal to patients and can lead to better treatment outcomes. On the contrary, if the resident's mood is low, his or her response to the patient is cold, and he or she cannot achieve emotional communication, he or she will be resistant and resentful, which is not conducive to the treatment. Therefore, the ability of residents to better control their emotions is key to improving treatment outcomes. Emotional control is an important component of emotional intelligence, and improving emotional control will help improve residents' humanistic care.

#### **Residents' level of emotional intelligence is a significant factor in humanistic care competence**

The connotation of emotional intelligence has deepened with the human understanding of emotional intelligence. Mansel, B et al. further define emotional intelligence as the ability to rationally recognize one's own, other's, and society's emotions and to apply them appropriately [31]. Emotional intelligence has a positive effect on enhancing residents' humanistic competence and instilling faith and hope. Residents with high emotional intelligence are not only able to recognize adverse emotions in patients, but also able to change patients' emotions through positive and positive guidance, and instill beliefs and emotions in patients to overcome their illnesses. In the study, multiple linear regression analysis indicated that residents' level of emotional intelligence was a significant factor influencing humanistic care competencies. Multiple linear regression analysis showed that self-emotional appraisal, emotional appraisal of others, emotional control, emotional use and experience of working in the school community were independent predictors of humanistic care competencies. A study by Papathanasiou Ioanna V et al. showed that as overall emotional intelligence increased, so did the frequency and importance of caring behaviours [21]. Patients can be better served through objective self-emotional appraisal, accurate assessment of others' emotions, and appropriate emotional control. It is recommended

that the level of emotional intelligence of residents is improved and that humanistic care skills be enhanced through training in humanistic literacy courses. In the study, it was found that residents with experience in school community work scored higher in emotional intelligence level. Therefore, residents should be encouraged to actively organize or participate in various school activities and social activities to improve their emotional intelligence levels. Resident training institutions can develop and improve residents' humanistic caring skills by offering humanistic caring-related elective courses. Medical educators can encourage residents to participate in voluntary or social activities to guide them to establish correct professional values and a correct outlook on life. Medical schools and hospitals should focus on creating a humanistic atmosphere and playing an exemplary role in caring for students by teachers so that residents can gradually develop humanistic care awareness and abilities in an environment where they fully feel and understand care.

### Limitations

There are two limitations to this study. Firstly, we only chose one hospital to conduct the survey, the sample size is limited, and it is convenient to conduct sampling during the survey, but the representativeness of the sample has some limitations. The sample size can be enlarged in future studies to expand the scope of the survey and enrich the representativeness of the sample. Secondly, this study, as a cross-sectional survey, lacked an assessment of the dynamics of residents' humanistic caring abilities, and the cross-sectional design of this study limited the inference of causal relationships among variables. Future research could be conducted longitudinally, which would help explore the inference of causal relationships between variables.

### Conclusions

Residents' emotional intelligence is at a medium level, and humanistic caring ability is at a low level. There is an obvious positive correlation between residents' emotional intelligence and humanistic caring ability, and emotional intelligence will have an important impact on humanistic caring ability. Medical educators should focus on increasing the cultivation of residents' emotional intelligence when designing residency training programs and setting training curricula, and throughout the entire process of standardized residency training, so as to improve residents' humanistic caring ability.

The findings suggest that residents' levels of emotional intelligence are related to humanistic care competencies and that little previous research has examined the relationship between them. The findings of the study help to raise the profile of emotional intelligence levels and

humanistic care competencies among educators. Building on existing research, researchers can develop targeted, actionable intervention programmes to explore specific interventions to improve residents' humanistic care competencies from the perspective of enhancing emotional intelligence levels.

Humanistic care competence is one of the core competencies of residents. Residents' humanistic care competence scores are low and there are many factors influencing emotional intelligence and different levels of development. Emotional intelligence is positively correlated with humanistic care competencies. The level of emotional intelligence is an important consideration in the development, implementation and evaluation of humanistic care interventions. Residency training units should reform their educational models to integrate the enhancement of emotional intelligence levels with humanistic education, pay attention to the care of residents in their daily teaching, allow residents to develop in an environment of humanistic care, improve their humanistic care competencies, and promote the overall health of society.

### Abbreviations

|       |   |
|-------|---|
| DQ    | Demographic Characteristics Questionnaire |
| CAI   | Caring Ability Inventory                  |
| WLEIS | Emotional Intelligence Inventory          |

### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12909-024-06097-4>.

Supplementary Material 1

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### Author contributions

PJ, XSW and YJ developed the theoretical, methodological and empirical basis for this project. XHM and XSW collected the data. LMW and PJ carried out the analysis. All authors participated in the discussion of the results and in drafting and revising the manuscript. All authors read and approved the final manuscript.

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### Data availability

Due to data protection regulations and agreements between researchers and participants, the datasets generated and/or analysed during this study are not publicly available but are available from the corresponding authors upon reasonable request.

## Declarations

### Ethics approval and consent to participate

All procedures were performed in accordance with relevant guidelines and regulations. Our study was approved by the Ethics Committee of Panzhihua Central Hospital. Informed consent was obtained from all study participants.

### Consent for publication

All subjects gave their written informed consent to take part in the study.

### Competing interests

The authors declare no competing interests.

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