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Current status and influencing factors of nurses' humanistic care ability in China：a cross-sectional study based on latent profile analysis

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Abstract

Background: The essence of nursing is humanistic care, and humanistic care ability has become a core concept in the clinical nursing service system and a key element of nurses' professional ability. However, existing studies mostly evaluate nurses' humanistic care ability based on total scale scores, ignoring the heterogeneity within the nurse population. This study used latent profile analysis to identify potential profiles of nurses' humanistic care ability and explore their influencing factors.

Methods：This cross-sectional study was conducted from April to August 2025. Participants were clinical nurses recruited from 32 hospitals across 16 prefecture-level cities in Anhui Province, China. A demographic questionnaire, the Caring Ability Inventory (CAI), the Nurses' Humanistic Literacy Self-rating Scale and the Knowledge-Attitude-Practice Questionnaire for Humanistic Care were used for data collection. A latent profile analysis was performed to characterize nurses' humanistic care ability, and influencing factors of the latent profiles were identified by univariate analysis and multinomial logistic regression analysis.

Results：A total of 2721 nurses were enrolled. The score of humanistic care ability among clinical nurses in Anhui Province was 194 (178, 211) , and their humanistic care ability was divided into three latent profiles, namely low humanistic care - overall deficiency group(7.2%), moderate humanistic care - insufficient courage group(35.5%), and high humanistic care - balanced development group(57.3%). Logistic regression analysis indicated that age, educational background, administrative position, job satisfaction, voluntary choice of the nursing major, humanistic literacy, as well as knowledge, attitude, and practice of humanistic care were the influencing factors of the latent profiles categories of nurses' humanistic care ability ($P<0.05$).

Conclusions：There exists group heterogeneity in humanistic care ability among clinical nurses in Anhui Province, which can be categorized into three latent profiles. Nursing managers can conduct individualized interventions according to the influencing factors of these profiles to enhance nurses' humanistic care ability.

Trial registration：Not applicable.

Background

With the sustained development of society and the continuous transformation of healthcare service models, patients' demands for healthcare experience, emotional support and spiritual care have been steadily increasing. Humanistic care is the essence and core of nursing. Nursing humanistic care refers to the sincere concern and care provided by nurses for patients' life and health, rights and needs, personality and dignity, as well as their quality of life and value of life, grounded in the spirit of humanity throughout the process of diagnosis, treatment, and nursing[1]. Nurses' humanistic care ability has become a core indicator for evaluating the quality of nursing services and fostering harmonious nurse-patient relationships[2]. Previous studies have also demonstrated that nurses' humanistic care ability not only affects patients' psychological well-being, improves the healthcare experience, enhances patient satisfaction and recognition of nurses' professionalism, but also fosters nurses' positive professional image[3–5]. Its importance is affirmed by national laws and policies in China[6, 7].

Currently, although medical institutions at all levels in China have been continuously conducting specialized training on humanistic care for nurses, patient satisfaction with humanistic nursing remains at a moderate level[8]; the overall level of humanistic care ability among Chinese nurses remains relatively low, and the concept of humanistic care has not yet been truly integrated into routine clinical nursing practice[9, 10]. Existing studies have shown that numerous factors influence nurses' humanistic care ability, including sociodemographic characteristics such as age, educational background, department, marital status, and years of work experience[11–13]; organizational and environmental

factors such as humanistic care training, perceived stress, and interpersonal relationships[14–16]; psychological traits such as empathy, emotional intelligence, and self-efficacy[14, 16, 17]. Furthermore, qualitative research further revealed that deficiencies in humanistic literacy and skills, insufficient evidence-based practice in humanistic care, and inadequate humanistic care awareness and confidence are all barriers to practicing humanistic care in nursing[18]. Multicenter surveys have also indicated that the level of humanistic literacy and the level of knowledge, attitude, and practice(KAP) regarding humanistic care among nurses in China are both at a moderate level, revealing a disconnection between cognition, beliefs, and clinical practice behaviors[19, 20]. To our knowledge, no existing study has explored the heterogeneous subgroups of nurses' humanistic care ability or clarified their relationships with humanistic literacy and the KAP of humanistic care.

Most existing studies treat nurses as a homogeneous group, which may obscure the significant heterogeneity present within the nursing workforce regarding humanistic care ability. Different nurses may form distinct subgroups based on varying combinations of personal traits, educational background, work environment, humanistic literacy, and KAP of humanistic care. Latent profile analysis as a person-centered analytical method, explains the relationships among external continuous variables through latent categorical variables, thereby identifying differences among observed variables. Therefore, this study aimed to explore the subgroups and characteristics of nurses' humanistic care ability through latent profile analysis and to examine the influencing factors, so as to provide a theoretical basis for developing targeted intervention measures.

Methods

Study design

This study employed a quantitative design based on a cross-sectional survey.

Participants

A stratified sampling method was adopted in this study. From April to August 2025, based on the 16 prefecture-level cities under the administrative division of Anhui Province, all tertiary and secondary hospitals in each city was compiled. One tertiary hospital and one secondary hospital were randomly selected from the respective hospital lists of each city using a random number table. Clinical nurses from these hospitals were then randomly selected as study participants. The inclusion criteria were as follows: (1) having at least one year of work experience and holding a valid nursing practice qualification; and (2) providing informed consent and voluntarily participating in the survey. The exclusion criteria were: (1) nurses not working in frontline clinical nursing positions, nursing interns, and visiting scholars; and (2) nurses not on duty at the time of the survey, including those on sick leave, personal leave, maternity leave, or external training.

Ethics consideration

Ethical approval

for this study was granted by the Institutional Review Board of the First Affiliated Hospital of Anhui Medical University (Approval No:PJ 2022-07-20). All participants signed informed consent forms.

Data collection tool

Demographic questionnaire

Based on a literature review, a self-designed general demographic questionnaire was developed by the researchers, including department, gender, age, educational background, marital status, number of children, professional title, administrative position, hospital grade, years of working experience, religious belief, humanistic caring atmosphere in the department, job satisfaction, and whether the participant had attended training related to humanistic care.

Caring Ability Inventory, CAI

The Caring Ability Inventory (CAI) was originally developed by Nkongho[21] in 1990 and translated into Chinese by Xu Juan[22] in 2008. The scale consists of three dimensions, namely cognition, courage, and patience, with a total of 37 items. A 7-point Likert scale was used for scoring, ranging from 1 (strongly disagree) to 7 (strongly agree). The total score ranges from 37 to 259, with higher scores indicating stronger humanistic care ability. In this study, the Cronbach's α coefficient of the scale was 0.881.

Nurses' Humanistic Literacy Self-rating Scale

The Nurses' Humanistic Literacy Self-rating Scale was developed by Zhang[23] in 2022. The scale includes six dimensions: cultural knowledge and aesthetics, interpersonal interaction, responsibility, psychology, communication, support and maintenance, comprising a total of 54 items. Each item is rated on a 5-point Likert scale from 1 (never) to 5 (always). The total score ranges from 54 to 270, with higher scores indicating a higher level of humanistic literacy. In this study, the Cronbach's α coefficient of the scale was 0.986.

The Knowledge-Attitude-Practice Questionnaire for Humanistic Care

The Knowledge-Attitude-Practice Questionnaire for Humanistic Care among nurses was developed by Li[24] in 2020. The questionnaire includes three dimensions: knowledge, attitude, and practice, with a total of 63 items. Each item is scored on a 5-point Likert scale. For the knowledge dimension, scores from 1 to 5 represent "completely unfamiliar" to "very familiar"; for the attitude dimension, scores from 1 to 5 represent "strongly disagree" to "strongly agree"; and for the practice dimension, scores from 1 to 5 represent "never" to "always." The total score ranges from 63 to 315, with higher scores indicating richer knowledge of humanistic care, more positive attitudes, and better practices among nurses. The standardized score is calculated as actual score/theoretical maximum score × 100. A standardized score below 60 is considered poor, 60–85 moderate, and above 85 good. In this study, the Cronbach's α coefficient of the scale was 0.976.

Distribution and quality control

In this study, electronic questionnaires were distributed through the online platform Wenjuanxing (https://www.wjx.cn/). Two trained researchers were responsible for questionnaire distribution. Submission rules were preconfigured within the electronic questionnaire. All participants were required to read and accept the electronic informed consent form prior to participation, and responses were submitted anonymously. After data collection, two researchers verified the questionnaire data and excluded questionnaires completed in less than 5 minutes, with patterned repetitive responses, internally inconsistent answers, or illogical content.

Method of data analysis

Mplus 8.3 software was used to conduct latent profile analysis of nurses' humanistic care ability[25]. The Akaike information criterion (AIC), Bayesian information criterion (BIC), and adjusted Bayesian information criterion (aBIC) are

commonly used indicators for evaluating model fit in statistics. Smaller values indicate better model fit. Entropy values ranges from 0 to 1, with larger values indicating higher classification accuracy; entropy > 0.8 indicates good classification. For the Lo-Mendell-Rubin adjusted likelihood ratio test (LMRT) and the bootstrap likelihood ratio test (BLRT), $P < 0.05$ indicates that the model with k-profile is superior to the model with k − 1-profile. SPSS 26.0 software was used for data analysis. Normally distributed continuous data were expressed as $\bar{x} \pm s$, while non-normally distributed data were expressed as M (P25, P75). Categorical data were described by frequency, percentage, or proportion. One-way analysis of variance, chi-square test, Kruskal-Wallis H test was used for univariate analysis. Multinomial logistic regression analysis was performed with the latent profile classification results as the dependent variable. A two-side *P* value of < 0.05 was considered statistically significant.

RESULTS

Common method bias test

Harman's single-factor test was used for exploratory factor analysis. The results identified 16 common factors with eigenvalues greater than 1 before rotation, which collectively explained 69.41% of the total variance. The first factor explained 34.02% of the variance, which was lower than the critical value of 40% [26], indicating that there was no significant common method bias existed in this study.

Demographic characteristics

A total of 2,800 electronic questionnaires were distributed in the study, and 2,721 valid questionnaires were recovered, yielding a valid response rate of 97.18%. Among the participants, 97.3% were female nurses, the mean age was 35.60 ± 7.02 years. Nurses with a bachelor's degree or above accounted for 86.3%, those with more than 10 years of clinical work experience accounted for 60.3%, and 63.2% held an intermediate or higher professional title. In addition, 67.9% of the nurses had received training in humanistic care.

Latent profiles of nurses' humanistic care ability

The score of nurses' humanistic care ability was 194 (178, 211). Specifically, the cognitive dimension score was 80 (72, 89), the courage dimension score was 53 (46, 62), and the patience dimension score was 63 (58, 66). Using the scores of the three dimensions of nurses' humanistic care ability as observed indicators, a total of 1 to 5 models were fitted. The model fit indices are shown in Table 1. The AIC, BIC, and aBIC values gradually decreased as the number of models increased, and all Entropy values were > 0.800, indicating that the classification accuracy above 90%. The LMRT and BLRT were significant for the 2-class and 3-class models (P < 0.001) but not for the 4-class model (*P* = 0.058). When the fit indices of each model were plotted in a scree plot, it can be observed that the decline in fit parameters slowed down from the 3-class to the 4-class model, and an inflection point appeared. Therefore, the 3-profile model was considered as the optimal model. The probabilities of each class belonging to its respective latent profile were 0.947, 0.887, and 0.931, respectively (Table 2), indicating that the results of the 3-profile models were reliable. A latent profile plot was drawn according to the classification results (Fig. 1).

Table 1
Fitting indicators of the latent profile model of nurses' humanistic care ability(n = 2721)

Model	AIC	BIC	aBIC	Entropy	LMRT (p value)	BLRT (p value)	Profile size (%)
1	61070.072	61105.525	61086.461	—	—	—	—
2	59246.380	59305.468	59273.695	0.841	<0.001	<0.001	0.223/0.777
3	58345.451	58428.174	58383.691	0.824	<0.001	<0.001	0.075/0.358/0.567
4	57830.184	57936.542	57879.350	0.824	0.058	<0.001	0.068/0.457/0.083/0.392
5	57339.792	57469.784	57399.883	0.807	<0.001	<0.001	0.065/0.056/0.189/0.386/0.304

Table 2
Categorical probability matrix of nurses' humanistic care ability across the three latent profiles (percentage, %)

Model	Categorical probability		
	Profile 1	Profile 2	Profile 3
Profile 1	0.947	0.053	0.000
Profile 2	0.020	0.887	0.092
Profile 3	0.000	0.069	0.931

Profiles were named according to their distinct characteristics. Profile 1 consisted of 195 nurses (7.2%), accounting for the smallest proportion. Nurses in this profile presented low scores across all dimensions of the scale, which was labeled the “low humanistic care-overall inadequacy group”. Profile 2 consisted of 965 nurses (35.5%), whose scores on the cognitive and patience dimensions were intermediate, whereas the courage dimension score was relatively low. Thus, this profile was labeled the “medium humanistic care-inadequate courage group”. Profile 3 consisted of 1,561 nurses (57.3%), the largest proportion. Nurses in this profile had high scores across all dimensions and was labeled the “high humanistic care-balanced development group”.

Univariate analysis

The results of univariate analysis showed that the three profile categories of nurses’ humanistic care ability differed significantly in age, educational background, years of work experience, department, professional title, administrative position, job satisfaction, voluntary choice of the nursing major, participation in humanistic care training, humanistic literacy and KAP of humanistic care(all $P < 0.05$; Table 3).

Table 3
Univariate analysis of participants' general information and latent profiles of humanistic care ability(n = 2721)

Variables	Total sample	Profile 1 (n = 195)	Profile 2 (n = 965)	Profile 3 (n = 1561)	Test statistic	P value
Gender					0.869[1)]	0.648
Men	73 (2.7)	6 (3.1)	29 (3.0)	38 (2.4)		
Women	2648 (97.3)	189 (96.9)	936 (97.0)	1523 (97.6)		
Age					68.357[1)]	<0.001
<30	512 (18.8)	60 (30.8)	213 (22.1)	239 (15.3)		
30–39	1511 (55.5)	107 (54.9)	559 (57.9)	845 (54.1)		
≥ 40	698 (25.7)	28 (14.3)	193 (20.0)	477 (30.6)		
Educational background					14.695[2)]	<0.001
Junior college or below	372 (13.7)	43 (22.1)	132 (13.7)	197 (12.6)		
Bachelor’s degree	2324 (85.4)	152 (77.9)	825 (85.5)	1347 (86.3)		
Master’s degree or above	25 (0.9)	0	8 (0.8)	17 (1.1)		
Years of work experience					64.881[2)]	<0.001
<10	1081 (39.7)	102 (52.3)	450 (46.6)	529 (33.9)		
10–19	1079 (39.7)	70 (35.9)	360 (37.3)	649 (41.5)		
≥ 20	561 (20.6)	23 (11.8)	155 (16.1)	383 (24.6)		
Department					21.858[1)]	0.005
Internal medicine	808 (29.7)	57 (29.2)	263 (27.3)	488 (31.3)		
Department of Surgery	558 (20.5)	33 (16.9)	208 (21.6)	317 (20.3)		
Obstetrics and gynecology, pediatrics	297 (10.9)	18 (9.2)	109 (11.3)	170 (10.9)		
Emergency department and ICU	290(10.7)	35 (17.9)	116 (12.0)	139 (8.9)		
Other departments	768 (28.2)	52 (26.7)	269 (27.9)	447 (28.6)		

1)chi-square test,;2Kruskal-Wallis H test

Variables	Total sample	Profile 1 (n = 195)	Profile 2 (n = 965)	Profile 3 (n = 1561)	Test statistic	P value
Professional title					59.476[1)]	<0.001
Junior	1002 (36.8)	106 (54.4)	396 (41.0)	500 (32.0)		
Intermediate	1483 (54.5)	83 (42.6)	510 (52.8)	890 (57.0)		
Senior	236 (8.7)	6 (3.1)	59 (6.1)	171 (11.0)		
Administrative position					72.510[1)]	<0.001
No	2182 (80.2)	183 (93.8)	831 (86.1)	1168 (74.8)		
Yes	539 (19.8)	12 (6.2)	134 (13.9)	393 (25.2)		
Religious belief					4.020[1)]	0.134
No	2613 (96.0)	191 (97.9)	932 (96.6)	1490 (95.5)		
Yes	108 (4.0)	4 (2.1)	33 (3.4)	71 (4.5)		
Voluntary choice of the nursing major					86.495[1)]	<0.001
Voluntary	2370 (87.1)	146 (74.9)	787 (81.6)	1437 (92.1)		
Involuntary	351 (12.9)	49 (25.1)	178 (18.4)	124 (7.9)		
Humanistic care training					89.393[1)]	<0.001
participation	1847 (67.9)	100 (51.3)	577 (59.8)	1170 (75.0)		
non-participation	874 (32.1)	95 (48.7)	388 (40.2)	391 (25.0)		
Job satisfaction					429.306[2)]	<0.001
Satisfied	2164 (79.5)	91 (46.7)	663 (68.7)	1410 (90.3)		
Average	503 (18.5)	90 (46.2)	270 (28.0)	143 (9.2)		
Dissatisfied	54 (2.0)	14 (7.1)	32 (3.3)	8 (0.5)		
KAP of humanistic care [M(P_{25}, P_{75})]	265 (247,285)	238 (212,256)	252 (238,269)	275 (258,298)	596.608[2)]	<0.001

1)chi-square test,;2Kruskal-Wallis H test

Variables	Total sample	Profile 1 (n = 195)	Profile 2 (n = 965)	Profile 3 (n = 1561)	Test statistic	P value
Humanistic literacy [M(P_{25}, P_{75})]	245 (216,268)	216 (198,254)	220 (212,253)	261 (229,270)	414.620[2)]	<0.001

1)chi-square test,;2Kruskal-Wallis H test

Multivariate analysis

Using the three latent profiles of nurses' humanistic care ability as the dependent variable, statistically significant variables identified in the univariate analysis were included as independent variables to conduct a multivariate logistic regression analysis. The test of parallel lines showed that χ^2 was 50.590, with $P < 0.001$, indicating that the assumption of parallel lines was not met (P > 0.05). Therefore, unordered multinomial logistic regression was used. The results showed that age, educational background, administrative position, job satisfaction, and voluntary choice of the nursing major, humanistic literacy, KAP of humanistic care were influencing factors of the latent profile categories of nurses' humanistic care ability. (Table 4).

Table 4
Multinomial logistic regression analysis of latent profiles of humanistic care ability(n = 2721)

Profile	β	SE	Wald χ^2	*P* value	OR	95% CI
C2 VS C1[1)]						
KAP of humanistic care	0.017	0.003	31.081	<0.001	1.017	1.011–1.024
Educational background	0.580	0.215	7.248	0.007	1.786	1.171–2.723
Job satisfaction	−0.346	0.108	10.269	0.001	0.707	0.572–0.874
C3 VS C1[1)]						
KAP of humanistic care	0.035	0.003	104.283	<0.001	1.036	1.029–1.043
Humanistic literacy	0.018	0.003	29.118	<0.001	1.018	1.012–1.025
Educational background	0.923	0.229	16.258	<0.001	2.517	1.607–3.942
Age	0.558	0.220	6.434	0.011	1.747	1.135–2.689
Job satisfaction	−1.057	0.117	81.479	<0.001	0.348	0.276–0.437
No administrative position	−0.704	0.346	4.134	0.042	0.495	0.251–0.975
C3 VS C2[2)]						
KAP of humanistic care	0.018	0.002	68.145	<0.001	1.018	1.014–1.022
Humanistic literacy	0.017	0.002	64.511	<0.001	1.017	1.013–1.021
Educational background	0.343	0.138	6.164	0.013	1.409	1.075–1.848
Job satisfaction	−0.711	0.069	104.804	<0.001	0.491	0.429–0.563
No administrative position	−0.285	0.142	4.000	0.045	0.752	0.569–0.994
Voluntary choice of the nursing major	0.314	0.146	4.600	0.032	1.369	1.027–1.824
C1: low humanistic care-overall inadequacy group, C2: medium humanistic care-inadequate courage group, C3:high humanistic care-balanced development group						
1)with C1 as the reference group;2)with C2 as the reference group						

Discussion

The score for humanistic care ability among nurses in Anhui Province was 194 (178, 211), which was similar to previous results[27] but lower than the minimum standard score of 203.1 established by Nkongho, indicating that the humanistic care ability of nurses in Anhui Province was at a relatively low level. This may be related to the relatively late start of humanistic caring nursing education in China, and the proportion of humanities courses in Chinese medical schools is only 7%-8%, which is lower than the corresponding proportions of 20%-30% in the United States and 10%-15% in the United Kingdom[14]. As well as differences in cultural backgrounds between China and Western countries in terms of cultural background, educational philosophy, and teaching methods[28]. In addition, the number of registered nurses per 1,000 population in China was 4.32, while in Anhui Province, it was 3.99[29, 30]. Inadequate nursing staffing may result in nurses enduring high-intensity workloads, lacking the time and energy to implement humanistic care measures.

The study identified three profiles of humanistic care ability among Chinese nurses, indicating obvious individual differences.The low humanistic caring-overall inadequacy group had the lowest overall humanistic care ability, especially in cognition dimension and patience dimension, reflecting a lack of systematic humanistic nursing concepts. This may related to insufficient education leading to inadequate humanistic knowledge and burnout induced by heavy workloads[31].The medium humanistic care-inadequate courage group only scored poorly in the courage dimension. Though equipped with basic humanistic care awareness and service skills, nurses hesitated to take initiative in humanistic services. Xu et al. [32] also found that the courage dimension scored the lowest among the dimensions of nurses' humanistic care ability. They may fear employing inappropriate verbal expressions in emotional interactions or being unable to adequately address patients' emotional reactions. Nurses in the high humanistic care-balanced development group demonstrated strong overall competence, which was associated with high proportions of voluntary choice of the nursing major (92.1%), participation in humanistic care training (75.0%) and high job satisfaction (90.3%).

There are sociodemographic differences in nurses' humanistic care ability. Older nurses were more likely to be classified into the high humanistic care-balanced development group(OR = 1.747), which agrees with the study by Liu et al.[33]. This may be related to the accumulation of clinical experience, more clinical experience enables nurses to better handle problems and provide supportive care to patients. Nurses with the higher level of education demonstrate stronger humanistic care ability (OR = 1.786, 2.517, 1.409), which is consistent with previous research findings[12]. This may be bacause higher nursing education attaches greater importance to cultivating nurses' humanistic literacy. The study also found that, compared with the high humanistic care-balanced development group, nurses without administrative position were more likely to be classified into the low humanistic caring-overall inadequacy group and medium humanistic care-inadequate courage group (OR = 0.495, 0.752). Mo et al.[34] also found that the higher the administrative position, the stronger the humanistic care ability, which may be explained by their wider access to various training programs. It is recommended that nursing administrators establish a tiered and categorized humanistic training system. Senior nurses can mentor junior nurses to compensate for their lack of clinical experience. A learning platform should be set up for nurses with lower educational background, while highly educated nurses are encouraged to conduct in-depth research on humanistic nursing. In addition, establish a humanistic assessment and incentive mechanism, appropriately empower nurses in their work, and create more opportunities for practice and development[35].

The results of this study show that nurses who voluntary choice the nursing major were more likely to be categorized into the high humanistic care-balanced development group (OR = 1.369). Ma et al.[14] also reported that nurses who selected their major due to personal interest scored higher in humanistic care ability than those who chose it for employment pressure or family advice. This may be because the firmer the professional intention of nurses, the higher their professional identity, and they will more actively practice the core values of nursing and participate in humanistic care training[36, 37].The results showed that higher job satisfaction was associated with stronger humanistic care ability among nurses (OR = 0.707, 0.348, 0.491), which was consistent with the findings reported by He[38] and Manookian[39]. This may be attributed to the fact that clinically satisfied nurses are more likely to receive positive feedback from their work, thereby internalize caring behaviors from external requirements into professional role identification, and become more willing to attend to patients' psychological and social needs. Accordingly, it is recommended that nursing managers implement targeted strategies to stimulate clinical nurses' interest and enthusiasm for their work, enhance their sense of professional mission and job satisfaction, and ultimately improve their humanistic care ability.

The results demonstrated that, relative to the low and moderate humanistic care groups, higher levels of humanistic literacy were significantly associated with an increased likelihood of being classified into the high humanistic care group (OR = 1.018, 1.017). Furthermore, higher scores in KAP of humanistic care were positively associated with humanistic care ability (OR = 1.017, 1.036, 1.018). Therefore, humanistic literacy and KAP of humanistic care are

positive predictors of nurses' humanistic care ability. Nurses’ humanistic literacy is an inherent personal quality formed by the integration of multiple individual factors including knowledge, emotion, willpower, competence and values, which manifests as an individual’s personality, temperament and moral cultivation[40]. Sound humanistic literacy can motivate nurses to take the initiative in caring for patients[41]. The improvement of nurses' humanistic literacy should run through their entire career cycle. Humanistic spirit can be internalized via adapted comic dramas[42], scenario simulation[43], narrative nursing[44] and other forms. Knowledge is the foundation of action, belief is the driving force that promotes knowledge acquisition and behavioral change, and behavior determines the outcome. The improvement of the knowledge-attitude-practice system of humanistic care helps nurses to fully integrate humanistic concepts and put them into practice in clinical care. Therefore, it is not enough to merely impart knowledge. Methods such as role-playing[45, 46] and drama[47] can be used to help nurses develop a belief in humanistic care and put it into clinical practice.

Limitations

This study has several limitations.First, the participants were all recruited from a province in Anhui, China, which limits the representativeness and generalizability of the findings. Future research should use multi-center, stratified random sampling that covers eastern, central, and western China, and include nurses from tertiary, secondary, and community hospitals. Secondly, a cross-sectional design can’t infer causality or capture changes in attitudes over time. Future studies could use a longitudinal design to explore how different nurses' humanistic care abilities change.

Conclusions

This study indicated that the overall humanistic care ability of clinical nurses in Anhui Province was at a relatively low level. Latent profile analysis identified three latent profiles with group heterogeneity. Further analyses revealed that nurses’ age, educational background, administrative position, voluntary choice of the nursing major, job satisfaction, humanistic literacy, and KAP of humanistic care were all significantly correlated with their humanistic care ability. Given that the improvement of humanistic literacy is a long-term and cumulative process, it is recommended that humanistic literacy education be implemented throughout nurses’ entire professional career, with a focus on strengthening practical humanistic care capabilities. Systematic training and supportive strategies should be adopted to effectively elevate the humanistic care ability of clinical nurses.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of the First Affiliated Hospital of Anhui Medical University(Approval No:PJ 2022-07-20). All procedures were conducted in accordance with relevant guidelines and regulations and adhered to the ethical principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection. Participants were informed that their involvement was voluntary and that they could withdraw from the study at any time without any consequences.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Author Contribution

XY.P, T.W, ZJ.S: Conceptualization, Methodology, Data curation, Formal analysis, Writing. Q.Y, YX.C, TT.W: Methodology, Writing - Original draft preparation. YY.S, ZZ.W, MM.Y: Formal analysis, Writing - Revised draft preparation, Data curation. F.M, ZJ.L, SH.H: Conceptualization, Methodology, Data collection, Writing - Original and Revised draft preparation. All authors had full access to all the data in the study, and the corresponding author had final responsibility for the decision to submit for publication. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

Data availability

The data underlying this article may be shared upon reasonable request from the corresponding author.

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Figures

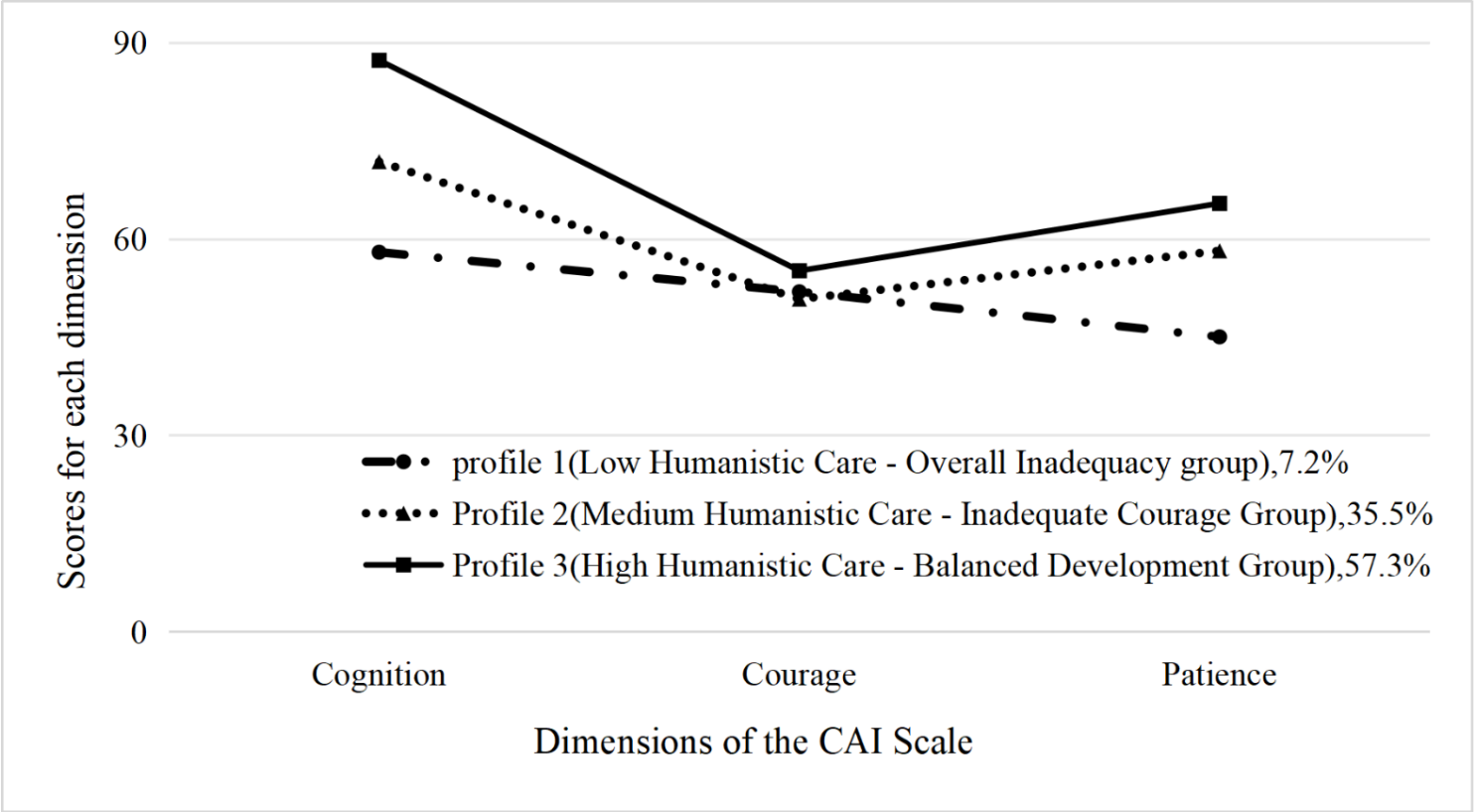


Figure 1

Latent profiles for nurses' humanistic care ability