WEP Warwick Evans Publishing

International Journal of Public Health and Medical Research

ISSN: 3006-7707 (Print), ISSN: 3006-3752 (Online) | Volume 6, Number 6, Year 2026
DOI: https://doi.org/10.62051/ijphmr.v6n6.04
Journal homepage: https://wepub.org/index.php/IJPHMR/index

The Impact of Emotional Intelligence on Clinical Adaptability of Nursing Interns under the "2+2" Teaching Model: The Moderating Role of Social Support

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ABSTRACT

Objective To investigate the clinical adaptation status of undergraduate nursing students under the "2+2" teaching model during their clinical clerkship, and to analyze the relationship with emotional intelligence and influencing factors. Methods A cross-sectional survey design was employed, involving 230 nursing interns under the "2+2" teaching model. Questionnaires including a General Information Questionnaire, the Maladaptive Behavior Scale, the Wong and Law Emotional Intelligence Scale (WLEIS), the Social Support Rating Scale, and the Chinese Big Five Personality Inventory were used for data collection. Statistical analysis was performed using SPSS 25.0, including descriptive analysis, univariate analysis, and multivariate Logistic regression analysis. Results The detection rate of poor clinical adaptation among nursing students was 57.8%. Univariate analysis showed that gender, dimensions of emotional intelligence, teaching support, and social support were significantly correlated with adaptability ($P<0.05$). Multivariate Logistic regression analysis indicated that "Use of Emotion" (OR=2.703) and "Regulation of Emotion" (OR=2.174) were independent predictive factors for clinical adaptability. Conclusion The problem of poor clinical adaptation among nursing students under the "2+2" model is prominent. The abilities of "Use of Emotion" and "Regulation of Emotion" in emotional intelligence, as well as the external support system, are key factors affecting their adaptability. It is suggested to enhance nursing students' clinical adaptability by strengthening emotional intelligence training, optimizing teaching support, and building a supportive environment.

KEYWORDS

Emotional Intelligence; "2+2" Teaching; Nursing Students

1. INTRODUCTION

With social development and the improvement of living standards, the demand for medical and nursing care continues to grow, and the importance of cultivating high-quality nursing talents has become increasingly prominent. To enable nursing students to adapt to the clinical setting more quickly and effectively, teaching models that closely integrate theory with practice—allowing for simultaneous theoretical learning and practical application—have garnered significant attention from educators. Currently, many countries have adopted an interleaved teaching model, where theory and practice are interwoven, in their four-year undergraduate nursing programs. Numerous studies have confirmed the superiority of this teaching model in fostering students' clinical work capabilities. Research indicates that an interleaved theory-practice teaching model can enhance students' comprehensive clinical competence, improve the internalization efficiency of theoretical knowledge, and foster early professional identity in nursing [1]. However, other studies suggest that despite this

model bridging the gap between theory and clinical practice and enabling students to adapt to clinical work earlier after graduation, a portion of students still experience maladaptation to clinical clerkships (practice). This is attributed to the abruptness of role transition, the complexity of the clinical environment, and the difficulty in translating theoretical knowledge into practical skills, which may be linked to a lack of adequate psychological preparation and systematic clinical support and guidance [2].

For many years, the 4-year nursing education program in China has followed a "3+1" structure: three years of on-campus theoretical study (mostly including a 1-2 month observational clerkship without hands-on practice) followed by a final year of clinical practice. Clinical experience has revealed that newly graduated nurses and nursing interns generally experience maladaptation in the clinical setting, manifested as difficulties in role transition, insufficient practical skills, and increased psychological stress [3]. Clinical practice is a critical phase for nursing students to translate theoretical knowledge into clinical competence [4], and their adaptation status reflects the quality of talent cultivation [5]. To innovate nursing education models, Chinese educators have made numerous attempts to integrate theory with practice. Some institutions have introduced a "2+2" teaching model, where nursing students enter hospitals in their junior year to engage in theoretical learning alongside clinical clerkships (including both observation and hands-on practice), followed by a full-time, immersive preceptorship in their senior year. Research indicates that this "learning while observing" model facilitates the integration of theory and practice [6], promotes the development of clinical reasoning and professional identity among nursing students, and enhances their confidence and professional competence in caring for patients and alleviating their suffering. Nevertheless, this model also poses significant challenges to students, as they are exposed to the complexities of the clinical environment at an earlier stage, making them more susceptible to maladaptation during clinical clerkships.

Clinical maladaptation refers to the inability of nursing students to actively or passively adjust their cognitive structures or behavioral patterns to maintain harmony with the clinical clerkship environment, resulting in a series of maladaptive responses to changes in the clinical learning environment over a short period. Clinical maladaptation not only directly reduces learning and practical efficiency but can also induce psychological disorders in severe cases, and even impact physiological functions and future career development [7]. Research indicates that clinical maladaptation is closely related to an individual's psychological preparedness, with emotional intelligence being a core component of this preparedness [8]. Those who adapt well to the clinical work environment often possess higher levels of emotional intelligence; they can keenly perceive situational changes, flexibly regulate their own emotions, and effectively utilize emotional information to guide their behavior, thereby maintaining psychological balance and behavioral efficacy under stressful conditions [7]. Conversely, those with maladaptation exhibit significant deficits in emotional awareness, understanding, and regulation. When confronted with complex interpersonal interactions and unexpected situations in the clinical environment, they are prone to emotional distress and struggle to mobilize internal resources for effective coping, subsequently displaying adaptive difficulties such as avoidance and rigidity [9]. Thus, the level of emotional intelligence may be a key psychological factor distinguishing between good and poor adaptation.

Emotional intelligence refers to an individual's ability to regulate their own and others' emotions and feelings, and to identify and utilize this information to guide personal thoughts and behaviors [10]. As a significant factor influencing an individual's environmental adaptation, emotional intelligence is receiving increasing attention in education and teaching [11]. Research indicates that newly graduated nurses and postpartum nurses [11] with higher levels of emotional intelligence are better equipped to cope with clinical stress, establish positive nurse-patient relationships [12], and handle various clinical issues with composure. Other studies have shown that nursing interns with high emotional intelligence can more effectively utilize social support to enhance professional performance through pathways such as promoting adaptation to clinical practice [13]. Currently, existing research on the emotional intelligence of nursing personnel has predominantly focused on

nurses in clinical practice or interns engaged in preceptorships. However, nursing students under the "2+2" teaching model—who are in the critical transitional phase from theoretical classrooms to clinical practice—have not yet been thoroughly explored. Although studies have confirmed that emotional intelligence facilitates the utilization of social support among preceptorship interns, research on the role of social support in the relationship between emotional intelligence and clinical adaptation remains absent.

Social support refers to various formal or informal aids derived from social networks [14]. Under high levels of social support, individuals can obtain richer emotional feedback and a safer space for practice, thereby enabling them to more fully and effectively mobilize and exert their emotional intelligence [15]. Specifically, a supportive environment (including emotional support from peer groups, understanding support from family and friends, and professional support from clinical instructors) can enhance positive beliefs such as self-efficacy [16], thereby promoting the generation of adaptive cognitions and behaviors, and enabling individuals to adapt to environmental stressors more quickly and effectively.

This study focuses on four-year undergraduate nursing students under the "2+2" teaching model. Through questionnaires and interviews, it aims to describe their clinical clerkship adaptation status and its relationship with emotional intelligence, and to explore the impact of different levels of social support—particularly support from clinical instructors—on this relationship. The study proposes strategies to enhance their clinical adaptability and emotional intelligence, providing empirical evidence for optimizing nursing education models. Furthermore, it offers scientific decision-making references and practical insights for educational administration departments to manage and optimize social support systems, thereby maximizing the positive benefits of nursing students' emotional intelligence in the adaptation process.

2. SUBJECTS AND METHODS

2.1. Study Subjects

Third-year clerkship nursing students under the "2+2" model from two universities in Wenzhou, Zhejiang Province, China, were selected as research subjects.

Inclusion criteria:

Full-time four-year undergraduate nursing students;

Currently in the junior clinical clerkship stage with clerkship duration ≥3 months;

Aged ≥18 years.

Exclusion criteria:

Diagnosed with moderate or above depression;

Severe anxiety;

Errors or accidents during clerkship;

Interns engaged in non-clinical nursing work (e.g., auxiliary, administrative, logistical roles).

2.2. Research Tools

2.2.1. General Information Questionnaire

Self-designed by the research team after literature review and expert consultation, covering gender, age, origin, family background, etc.

2.2.2. Maladaptation Scale

Developed by Lei Jie in 2013 [17]. It assesses individual adaptability in specific environments, including four dimensions and 28 items: interpersonal relationship and social interaction, internship performance, professional cognition and affection, and emotion. It uses a 5-point Likert scale (1=fully consistent, 2=mostly consistent, 3=neutral, 4=mostly inconsistent, 5=fully inconsistent). Total score ranges from 28 to 140; lower score indicates more severe maladjustment. Classification: ≥95 = good adaptation; 78–94 = mild maladjustment; ≤77 = moderate-severe maladjustment. Cronbach's α in this study = 0.921.

2.2.3. Wong and Law Emotional Intelligence Scale (WLEIS)

Developed by Wong et al. (Hong Kong) [18]. The Chinese version revised by Wang Yefei [19] was adopted, including four dimensions and 16 items: self-emotion appraisal, regulation of emotion, use of emotion, and others' emotion appraisal. It uses a 7-point Likert scale (1=strongly disagree, 7=strongly agree). Total score: 16–112; higher score indicates higher emotional intelligence. Cronbach's α in this study = 0.91.

2.2.4. Social Support Rating Scale (SSRS)

Developed and revised by Xiao Shuiyuan (1986–1993) [20]. It includes three dimensions and 10 items: objective support (3 items), subjective support (4 items), and utilization of social support (3 items). Total score: 15–84; higher score indicates higher social support. Classification: ≤32 = low level; 33–64 = medium level; ≥65 = high level.

2.2.5. Preceptor Support Scale

Revised from the Teacher Support Scale developed by Chi Xianglan. It includes three dimensions and 21 items: emotional support, autonomy support, and competence support (7 items each). It uses a 5-point Likert scale (1=fully inconsistent, 5=fully consistent). Total score: 21–105; higher score indicates stronger perceived preceptor support. Classified into low-support group (below mean) and high-support group (≥mean).

2.2.6. Chinese Big Five Personality Inventory Brief Version (CBF-P-IB)

Translated and revised by Wang Mengcheng [21], including five dimensions and 40 items: neuroticism, conscientiousness, agreeableness, openness, and extraversion. It uses a 6-point Likert scale. Higher dimension score indicates stronger corresponding trait. Cronbach's α in this study = 0.858.

2.3. Survey Method

Anonymous questionnaires were administered voluntarily via Wenjuanxing (online platform) through WeChat. Mandatory fields and logical checks were set to ensure completeness and validity. Investigators were uniformly trained. The study was approved by the Ethics Committee of Wenzhou Medical University.

A total of 245 questionnaires were distributed, 243 were recovered, and 235 were valid (effective response rate: 94%). For final analysis, 230 valid samples were included.

2.4. Statistical Analysis

Data were entered using Epidata and analyzed with SPSS 25.0. Amos was used to construct structural equation models (SEM) for moderating effect analysis. Significance level $\alpha=0.05$; $P<0.05$ was considered statistically significant.

Descriptive statistics: mean±standard deviation (median, interquartile range) for continuous data; frequency and percentage for categorical data.

Group differences: independent-samples t-test, one-way ANOVA, chi-square test.

Correlation: Pearson correlation analysis.

Influencing factors: binary Logistic regression.

Moderating effect: SEM with maximum likelihood estimation; model fit assessed by χ^2/df, GFI, CFI, TLI, RMSEA.

3. RESULTS

3.1. General Demographic Characteristics

A total of 230 valid questionnaires were included in this study, with an effective response rate of 88%. The average age of the participants was 20 years, and the average clerkship duration was 4 months. The general demographic characteristics are shown in Table 1.

Table 1. General Demographic Characteristics of the Participants (n=230)

Characteristic	Category	Frequency	Percentage	Characteristic	Category	Frequency	Percentage
Gender	Male	37	16.1	Served as a student cadre	Yes	95	41.3
	Female	193	83.9		No	135	58.7
Age	18–22 years	201	87.4	Voluntarily chose nursing major	Yes	176	76.5
	Over 24 years	29	12.6		No	54	23.5
Only child	Yes	63	27.4	Part-time work experience	Yes	126	54.8
	No	167	72.6		No	104	45.2
Household registration	Rural	159	64.8	Planned future employment	Yes	219	95.2
	Urban	81	35.2		No	11	4.8

3.2. Scale Scores of the Participants

3.2.1. Scores of the Maladaptation Scale

The scores of the Maladaptation Scale are shown in Table 2.

Table 2. Overall Scores of the Maladaptation Scale (n=230)

Variable	Total Score/ Mean ± SD	Range (Min–Max)	Classification	Category	n (%)
Maladaptation Scale	92.14 ± 16.088	41–138	Good adaptation	96 (41.7%)	
			Maladaptation	133 (57.8%)	

As shown in Table 2, the overall adaptation of the participants was at a lower-moderate level, and nearly 60% of the students faced adaptation challenges. Their overall emotional intelligence was at an upper-moderate level, with more than half (56.6%) of the students in the high-score group of emotional intelligence.

3.2.2. Emotional Intelligence Scale (WLEIS)

The total score ranged from 47 to 111, with a mean score of 85.23 (SD = 11.310), indicating that the participants' overall abilities in emotion perception and regulation were at or above the moderate level. Using the mean score of 85 as the cutoff, the sample was divided into a low-score group (100 students, 43.5%) and a high-score group (130 students, 56.6%). The dimension scores are shown in Table 3.

Table 3. Dimension Scores of the Emotional Intelligence Scale (n=230)

Dimension	Category	n (%)
Self-emotion appraisal	≥24	105 (45.7%)
	≤23	125 (54.3%)
Others' emotion appraisal	≥23	113 (49.1%)
	≤22	117 (50.9%)
Regulation of emotion	≥22	100 (43.5%)
	≤21	130 (56.5%)
Use of emotion	≥23	83 (36.1%)
	≤22	147 (63.9%)

3.2.3. Social Support Rating Scale (SSRS)

The total score ranged from 15 to 84, with a mean score of 63.07 (SD = 10.409), indicating that the social support obtained by students from family, friends and other sources was generally at or above the moderate level. According to the norm of the scale, social support was classified into low, moderate and high levels. Given the small number of students in the low-level group (2 students, 0.9%) in this sample, the low and moderate levels were combined into "moderate or lower level" for subsequent analysis to achieve a more balanced distribution. After combination, the moderate or lower level (score ≤64) included 123 students (53.5%), and the high level (score ≥65) included 107 students (46.5%).

3.2.4. Preceptor Support Scale

The total score ranged from 45 to 85, with a mean score of 64.85 (SD = 10.435), indicating that the professional support perceived by students in clinical teaching was at an upper-moderate level. Using the mean score of 64.85 as the cutoff, the sample was divided into a low preceptor support group (97 students, 42.2%) and a high preceptor support group (133 students, 57.8%).

3.2.5. Chinese Big Five Personality Inventory Brief Version (CBF-P-IB)

The total score ranged from 87 to 157, with a mean score of 121.06 (SD = 11.312), indicating that the personality characteristics of the participants were in the upper-moderate range. Using the mean score of each dimension as the cutoff, the sample was divided into high-score and low-score groups for each dimension. The dimension scores are shown in Table 4.

Table 4. Dimension Scores of the Chinese Big Five Personality Inventory Brief Version

Dimension	Category	n (%)
Neuroticism	High group (≥27)	131 (57%)
	Low group (≤26)	99 (43%)
Agreeableness	High group	92 (40%)
	Low group	138 (60%)
Openness	High group (≥32)	125 (54.3%)
	Low group (≤31)	105 (45.7%)
Extraversion	High group (≥29)	120 (52.2%)
	Low group (≤28)	110 (47.8%)

As shown in Table 4, 57% of the participants were in the high neuroticism group, suggesting that more than half of the nursing students had certain challenges in emotional stability. The low agreeableness group accounted for 60%, indicating possible deficiencies in interpersonal cooperation and empathy. The high and low groups of openness and extraversion were relatively evenly distributed.

3.3. Univariate Analysis of Influencing Factors on Clinical Adaptation

Chi-square tests were used to analyze the effects of demographic variables, emotional intelligence classification and supportive factor categories on adaptation. The results showed that among demographic and professional choice factors, gender was significantly associated with adaptation ($P < 0.05$), and the proportion of good adaptation was higher in male interns than in female interns. The proportion of good adaptation was significantly higher in students who voluntarily chose the nursing major than in those who did not. All four dimensions of emotional intelligence (self-emotion appraisal, others' emotion appraisal, regulation of emotion, use of emotion) were significantly correlated with adaptation ($P < 0.05$), and the proportion of good adaptation in the high-score groups was significantly higher than that in the low-score groups. Among supportive factors, preceptor support and social support were significantly positively correlated with adaptation ($P < 0.001$); the higher the support level, the higher the proportion of good adaptation (see Table 5).

Table 5. Univariate Analysis of Clinical Clerkship Adaptability of Nursing Students (n=230)

Factor	Category	Good adaptation [n(%)] (n=96)	Maladaptation [n(%)] (n=133)	χ^2	P-value
Voluntarily chose nursing major	Yes	52 (68.4)	24 (31.6)	4.12	0.042
	No	86 (55.8)	68 (44.2)		
Age group	<20	30 (60.0)	20 (40.0)	1.25	0.535
	20–25 years	90 (58.4)	64 (41.6)		
	>25	18 (69.2)	8 (30.8)		
Self-emotion appraisal	≥24	62 (59.0)	43 (41.0)	23.36	<0.001
	≤23	34 (27.4)	90 (72.6)		
Neuroticism	≥27	29	102	49.210	<0.001
	≤26	67	31		
Agreeableness	High group	53	38	16.520	<0.001
	Low group	43	95		
Regulation of emotion	≥22	59 (59.0)	41 (41.0)	21.27	<0.001
	≤21	37 (28.7)	92 (71.3)		
Use of emotion	≥23	54 (65.1)	29 (34.9)	28.63	<0.001
	≤22	42 (28.8)	104 (71.2)		
Preceptor support	≥65	77 (57.9)	56 (42.1)	33.25	<0.001
	≤64	19 (20.0)	77 (80.0)		
Social support	≤32	0 (0.0)	2 (100.0)	28.18	<0.001
	33–64	32 (26.4)	89 (73.6)		
	≥65	64 (60.4)	42 (39.6)		

3.4. Multivariate Logistic Regression Analysis of Influencing Factors on Adaptability

3.4.1. Multivariate Logistic Regression Analysis of Emotional Intelligence Dimensions on Clinical Adaptability

To identify the independent predictive effects of emotional intelligence dimensions on clinical adaptability and control for mutual influences among dimensions, binary Logistic regression analysis was performed with adaptive classification (good adaptation = 1, maladaptation = 0) as the dependent variable and emotional intelligence dimension classification (high group = 1, low group = 0) as independent variables. The results (see Table 6) showed that after controlling for other components of emotional intelligence, use of emotion and regulation of emotion were significant independent predictors of clinical adaptability in nursing interns. Among them, use of emotion had the strongest predictive effect (OR = 2.703, 95%CI: 1.360–5.373, P = 0.005), indicating that clerkship students in

the high use-of-emotion group were 2.70 times more likely to achieve good adaptation than those in the low group. Regulation of emotion also had a significant predictive effect (OR = 2.174, 95%CI: 1.052–4.495, P = 0.036), with students in the high group being 2.17 times more likely to adapt well than those in the low group. Self-emotion appraisal, others' emotion appraisal and total emotional intelligence score showed no significant independent predictive effect in this model.

Table 6. Multivariate Logistic Regression Analysis of Emotional Intelligence Dimensions on Clinical Adaptability (n=230)

Variable (High vs Low)	B	SE	Wald χ^2	P	OR	95%CI
Self-emotion appraisal	0.380	0.363	1.094	0.296	1.462	0.718–2.979
Others' emotion appraisal	0.520	0.349	2.222	0.136	1.682	0.849–3.334
Regulation of emotion	0.777	0.371	4.394	0.036	2.174	1.052–4.495
Use of emotion	0.994	0.350	8.052	0.005	2.703	1.360–5.373
Total emotional intelligence	−0.350	0.514	0.464	0.496	0.704	0.257–1.930
Constant	−3.118	0.654	22.770	<0.001	0.044	—

3.4.2. Effects of Emotional Intelligence and Related Factors on Adaptability

To further explore the independent effects of various factors on adaptability, forward stepwise binary Logistic regression analysis was conducted. Two regression models were constructed: Model 1 included emotional intelligence and related factors; Model 2 included personality traits and related factors.

Table 7. Binary Logistic Regression Analysis Based on Emotional Intelligence and Related Factors (n=230)

Step	Variable	B	SE	Wald χ^2	P	OR	95%CI
1	Preceptor support (binary)	1.718	0.311	30.591	<0.001	5.572	3.032–10.243
	Constant	−2.036	0.435	21.939	<0.001	0.131	—
2	Self-emotion appraisal (binary)	1.058	0.301	12.384	<0.001	2.880	1.598–5.190
	Preceptor support (binary)	1.502	0.321	21.912	<0.001	4.491	2.394–8.424
	Constant	−3.342	0.600	31.013	<0.001	0.035	—
3	Self-emotion appraisal (binary)	1.126	0.310	13.218	<0.001	3.083	1.680–5.658
	Preceptor support (binary)	1.348	0.329	16.748	<0.001	3.848	2.018–7.337
	Voluntarily chose nursing major	1.249	0.417	8.970	0.003	3.489	1.540–7.903
	Constant	−4.727	0.796	35.309	<0.001	0.009	—
4	Self-emotion appraisal (binary)	0.894	0.325	7.560	0.006	2.445	1.294–4.622
	Use of emotion (binary)	0.866	0.339	6.527	0.011	2.378	1.224–4.623
	Preceptor support (binary)	1.137	0.341	11.084	<0.001	3.116	1.596–6.085
	Voluntarily chose nursing major	1.239	0.419	8.733	0.003	3.453	1.518–7.856
	Constant	−5.481	0.876	39.130	<0.001	0.004	—

As shown in Table 7, Model 1 included variables in 4 steps. The final model showed that self-emotion appraisal, use of emotion, preceptor support and voluntary choice of nursing major were independent predictors of adaptability ($P < 0.05$). Specifically, interns in the high self-emotion appraisal group were 2.445 times more likely to adapt well than those in the low group (OR = 2.445, 95%CI: 1.294–4.622). Interns in the high use-of-emotion group were 2.378 times more likely to adapt well than those in the low group (OR = 2.378, 95%CI: 1.224–4.623). Interns with high preceptor support were 3.116 times more likely to adapt well than those with low support (OR = 3.116, 95%CI: 1.596–6.085). Interns who voluntarily chose the nursing major were 3.453 times more likely to adapt well than those who did not (OR = 3.453, 95%CI: 1.518–7.856).

3.4.3. Effects of Personality Traits and Related Factors on Adaptability

The results of Model 2 (Table 8) showed that after controlling for personality traits, self-emotion appraisal, preceptor support and voluntary choice of nursing major remained independent protective factors for adaptability, while neurotic personality was a risk factor. Specifically, interns in the high self-emotion appraisal group were 2.024 times more likely to adapt well than those in the low group (OR = 2.024, 95%CI: 1.041–3.934). Interns with high preceptor support were 2.959 times more likely to adapt well than those with low support (OR = 2.959, 95%CI: 1.485–5.894). Interns who voluntarily chose the nursing major were 3.592 times more likely to adapt well than those who did not (OR = 3.592, 95%CI: 1.534–8.412). In contrast, interns in the high neuroticism group were only 18.8% as likely to adapt well as those in the low group (OR = 0.188, 95%CI: 0.097–0.367).

Table 8. Binary Logistic Regression Analysis Based on Personality Traits and Related Factors (n=230)

Step	Variable	B	SE	Wald χ^2	P	OR	95%CI
1	Neuroticism (binary)	−2.028	0.302	44.980	<0.001	0.132	0.073–0.238
	Constant	3.286	0.474	48.135	<0.001	26.737	—
2	Preceptor support (binary)	1.400	0.336	17.423	<0.001	4.057	2.102–7.830
	Neuroticism (binary)	−1.788	0.316	31.968	<0.001	0.167	0.090–0.311
	Constant	1.011	0.683	2.191	0.139	2.748	—
3	Preceptor support (binary)	1.198	0.346	12.024	<0.001	3.314	1.684–6.524
	Voluntarily chose nursing major	1.260	0.434	8.431	0.004	3.524	1.506–8.246
	Neuroticism (binary)	−1.855	0.329	31.840	<0.001	0.156	0.082–0.298
	Constant	−1.360	0.801	0.029	0.865	0.873	—
4	Self-emotion appraisal (binary)	0.705	0.339	4.325	0.038	2.024	1.041–3.934
	Preceptor support (binary)	1.085	0.352	9.520	0.002	2.959	1.485–5.894
	Voluntarily chose nursing major	1.279	0.434	8.675	0.003	3.592	1.534–8.412
	Neuroticism (binary)	−1.669	0.340	24.121	<0.001	0.188	0.097–0.367
	Constant	−1.353	1.007	1.803	0.179	0.259	

4. DISCUSSION

4.1. Current Status of Clinical Adaptation Among Nursing Students Under The "2+2" Training Mode

This study found that the detection rate of poor clinical adaptation among nursing students reached 57.8%, which was distinctly higher than that under the traditional internship mode. This result clearly reveals the underlying challenges accompanied by the practical advantages of the "early and frequent clinical practice" concept in the "2+2" teaching model. For junior college nursing students,

professional identity is still in the formative stage and their professional knowledge system remains incomplete. During clinical practice, they commonly encounter difficulties in role transition, insufficient practical experience and heavy psychological stress. Some students even develop poor adaptation, which negatively affects internship outcomes and their mental health [22]. Relevant studies have confirmed that the educational effectiveness of college-hospital integrated teaching reform will be greatly weakened by students' prevalent emotional exhaustion and professional frustration in the absence of a sound and targeted adaptive support system. In 2025, Haver and colleagues conducted a qualitative study to explore the roles of emotional intelligence and mental health in stress management. They suggested that systematic emotional education and mental health intervention should be incorporated into nursing curricula to establish a more supportive environment for academic learning and clinical practice [23].

4.2. Core Effect And Dimensional Differences of Emotional Intelligence on Clinical Adaptation

Multivariate analysis verified that emotional intelligence plays a central role in promoting clinical adaptation of nursing students, and significant differences exist in the influence of its various dimensions. Overseas studies have also proven that emotional intelligence is positively correlated with clinical practice performance and can effectively reduce clinical stress perception, confirming its essential position in nursing education [24]. A previous study conducted by Li Lina demonstrated that emotional intelligence has a stronger predictive effect on internship adaptation than academic performance, highlighting the vital value of emotional management competence in clinical work [25]. Specifically, self-emotional appraisal (OR=2.445) and use of emotion (OR=2.378) showed the strongest predictive power in this research. It indicated that competent nursing students are required to not only accurately perceive their own emotional states, but also convert emotional energy into effective motivation to solve practical clinical problems. By contrast, others' emotional appraisal and emotion regulation exerted relatively weaker effects. This finding implies that self-emotional cognition and management are more essential than perception of others' emotions for nursing students adapting to clinical settings. A reasonable explanation for such dimensional differences is that nursing students need to stabilize their personal emotions first under high-pressure clinical environments so as to devote themselves fully to clinical work; excessive attention to others' emotions will instead increase their emotional burden and hinder the adaptation process. According to the research by Li Li et al. [26], nursing students with higher emotional intelligence tend to maintain positive working attitudes and achieve higher work engagement. This conclusion provides clear directions for targeted intervention, namely prioritizing the cultivation of self-emotional appraisal and use of emotion in nursing education.

4.3. Moderating Effect of Neurotic Personality And Stability of Emotional Intelligence

Another key finding of this study is that self-emotional appraisal still retains a significant predictive effect (OR=2.024) after controlling for the influence of neurotic personality, which fully confirms its stable positive effect on improving clinical adaptation. As a crucial moderating variable, high neuroticism (OR=0.188) means that individuals with high neurotic traits are prone to frequent emotional fluctuations and may suffer more intense negative emotional reactions when facing uncertain clinical situations [27], thus encountering greater obstacles in coping with various clinical challenges. Nevertheless, the stable function of self-emotional appraisal indicates that targeted training on self-emotional awareness and understanding can relieve the adverse impacts caused by high neurotic personality to a certain extent. This finding bears important theoretical and practical significance. Theoretically, it proves that certain components of emotional intelligence can exert independent positive effects beyond the restriction of inherent personality traits. Practically, it offers feasible intervention strategies to improve clinical adaptation of nursing students with high neurotic

tendencies, which is to make up for personality deficiencies by strengthening their self-emotional appraisal ability.

4.4. Key Driving Roles of Preceptorship Support and Career Choice Motivation

The research results confirmed that preceptorship support (OR=3.116) and voluntary major choice of nursing (OR=3.453) are core driving factors for clinical adaptation of nursing students, which is also supported by foreign empirical studies. Zhang Xin and other scholars [28] pointed out that clinical internship is a critical period for nursing students to master professional knowledge and practical skills and establish professional responsibility, and clinical preceptors exert direct influences on students' cognition of nursing profession. Therefore, clinical preceptors are supposed to deliver positive guidance to interns. In cognitive aspect, preceptors provide systematic professional guidance and knowledge popularization; in emotional aspect, their sincere support effectively alleviates students' internship anxiety and sense of uncertainty; in behavioral aspect, harmonious teacher-student relationships create favorable conditions for observational learning and hands-on practice. Studies by Zhang Qiushi et al. [29] showed that nursing students with strong professional identity are willing to conduct continuous self-reflection during internship, maintain a progressive mindset to improve professional competencies and adapt to clinical environments more smoothly. Professional identity reflected by voluntary nursing major choice provides lasting internal motivation for students to overcome adaptation difficulties. Karimi et al. [30] further verified that professional identity is closely associated with emotional intelligence. Nursing staff with higher professional identity are more adept at applying emotional intelligence to relieve work pressure, so as to enhance job adaptation and mental health status. These two factors jointly form an external support-internal motivation system for clinical adaptation. Preceptorship support supplies essential external resources, while professional identity stimulates students' initiative to cope with difficulties. This interactive mechanism suggests that simultaneous optimization of external supporting systems and enhancement of internal driving force are required to boost nursing students' clinical adaptation ability.

4.5. Implications for Nursing Education And Clinical Management Under The "2+2" Teaching Mode

Based on the above empirical results, this study proposed an integrated ability-environment dual-drive strategy to effectively improve nursing students' clinical adaptation and emotional intelligence level.

4.5.1. Curriculum and Teaching Reform

Emotional intelligence training modules should be advanced and systematically integrated into the curriculum system of the "2+2" mode. Teaching design and evaluation standards need to shift focus from simple knowledge imparting to comprehensive competency cultivation. Evidence-based training approaches including high-simulation scenario simulation, structured reflective journals and mindfulness decompression training should be developed to strengthen students' ability in emotion use and emotion regulation. A systematic review conducted by Foster et al. [31] proved that embedding emotional intelligence training into nursing courses can effectively improve nursing students' emotional perception and regulation abilities, and further optimize their clinical practice performance and adaptive competence.

4.5.2. Construction of Clinical Teaching Faculty

Cooperative hospitals ought to establish standardized training and certification systems for clinical preceptors, help preceptors establish clear awareness of supportive tutoring roles and improve their capabilities in identifying students' psychological needs, delivering developmental feedback and providing emotional comfort.

4.5.3. Construction of Supportive Environmental System

Colleges and cooperative hospitals should jointly build a three-dimensional support network covering preceptor guidance, peer assistance and institutional support. Henderson et al. [32] emphasized that structured supportive learning environments can greatly enhance nursing students' sense of security and clinical adaptability via tutor guidance, peer mutual aid and integrated institutional resources. For instance, exclusive psychological support platforms and senior student mentoring programs for students under the "2+2" mode can be launched to form a whole-process supporting mechanism covering theoretical learning and clinical probation.

4.6. Research Limitations And Future Prospects

This study adopted a cross-sectional design, which fails to determine causal relationships among research variables. Longitudinal follow-up research can be conducted in the future to dynamically explore the developmental trends and interactive correlations between clinical adaptation and emotional intelligence among students under the "2+2" mode. In addition, all research subjects were recruited from single cooperative institutions, so multi-center and cross-regional comparative studies are needed to verify the general applicability of the research conclusions. Moreover, qualitative research methods can be adopted to deeply explore practical difficulties and inner psychological experiences of nursing students during clinical adaptation, so as to enrich the research depth and improve ecological validity of relevant findings.

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APPENDIX

Questionnaire for Nursing Students

Dear students,

We sincerely appreciate your participation in this survey. Good adaptation during clinical probation is vital for academic achievement, subsequent internship and future clinical work. To help nursing

students better adapt to probation life, we designed this questionnaire to investigate your current adaptation status as well as related emotional conditions, so as to provide targeted support for you.

This survey is conducted anonymously. All your answers will be used only for academic research. Thank you for your cooperation and support.

Part One: General Information

Your gender: [Single choice] *

○ Male

○ Female

Your age: [Single choice] *

○ 18-22 years old

○ 22-24 years old

○ Above 24 years old

Are you the only child in your family? [Single choice] *

○ Yes

○ No

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