A study on the professional identity intervention of Chinese new nurses by Balint groups from the perspective of ABC theory of emotion-hong

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Abstract

Objective To explore the intervention effect of ABC theory on the professional identity and irrational beliefs of new Chinese nurses in Balint groups (BGs).

Methods A total of 110 Chinese nurses newly recruited in August 2021 by a grade-A tertiary general hospital in Wenzhou, Zhejiang province were adopted as research objects. They were randomly divided into an experimental group and a control group, the experimental group spread out in groups to practice the BGs, and the control group did not have any intervention. Before and after the intervention, the Chinese nurses were assessed with a general information questionnaire, nurses' professional identity rating scale, and irrational beliefs rating scale.

Results After the intervention, the scores of Chinese nurses' professional identity in the experimental group and the control group were 115.51 ± 14.03 and 106.58 ± 14.45 respectively, belonging to the middle level, and the scores of Chinese nurses' irrational beliefs in the two groups were 49.33 ± 12.30 and 59.98 ± 13.10 respectively, and the differences were both statistically significant ($p < 0.05$).

Conclusion Introducing the ABC theory of emotion into BG can reduce irrational beliefs and enhance the professional identity of Chinese new nurses.

Keywords ABC theory, Balint group, Chinese new nurses, Professional identity

Instruction

With the acceleration of the aging process and the growing need for chronic disease prevention and treatment, the global nursing workforce shortage situation is increasingly severe [1]. As the new force of the nursing team, new nurses profoundly impact clinical nursing quality and patient safety. However, nurse turnover worldwide remains high, ranging from 12 to 60% [1–5]. This shows that the turnover rate of new nurses does not decrease over time, but the turnover risk increases year by year. In addition, the WHO estimates that the world is facing a shortfall of 9 million nurses, which is needed to achieve and sustain universal health coverage by 2030 [6]. The high turnover rate not only aggravates the nurse workforce shortage but also affects the development of the whole nursing industry [7]. The important reason for the high turnover rate of nurses is that the professional identity of nurses is not high [8]. Studies have also found

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that the professional identity of new nurses is negatively correlated with the turnover rate. The higher the professional identity, the lower the turnover rate, and the lower the professional identity, the higher the turnover rate [9]. Therefore, how to help new nurses successfully complete the standardized training period, improve their sense of professional identity, and alleviate occupational burnout is crucial to the development of the nursing team.

Although new nurse training in China generally lasts 1 to 3 years, including pre-job training and job rotation training, there are still significant gaps in existing intervention strategies. Most interventions focus on changing the external environment, such as providing mentor guidance, clinical rotations, and workshops, aiming to improve working conditions and support systems. However, these approaches often ignore internal factors that affect professional identity, such as cognitive and emotional adjustments. The ABC theory of emotion holds that irrational beliefs are the determinants of emotional disorders [10], emphasizing that emotions or bad behaviors are caused by the individual self-evaluation and interpretation of events rather than by events induced externally. Balint group (BG) is one of the effective methods to relieve occupational stress for medical staff at home and abroad with a working mode to make the group members perceive problems from different roles and reflect on irrational beliefs [11]. Therefore, both BG and ABC theories of emotion can make the participants re-examine their irrational beliefs, re-establish rational beliefs, cultivate positive emotions, and generate positive behavior. This combination not only provides new nurses with an opportunity to reassess their own cognitions, but also promotes their emotion regulation abilities, thereby enhancing professional identity.

Some intervention studies on nurses' professional identity have been carried out domestically and overseas. The international intervention on nurses' professional identity mainly includes career planning guidance, rational allocation of human resources, strengthening psychological contract management and fully training male nurses [12]. Previous research only carried out the intervention from a single perspective, lacking the linkage between theories, and the innovation of research methods, resulting in limited intervention in new nurses' professional identity. ABC theory is a comprehensive analysis of individual factors and social factors on the impact of irrational events as well as a comprehensive assessment of cognitive ability and personal coping style on the impact of irrational beliefs, with increasing influence in the field of nursing in recent years [13–15]. This study aims to verify whether the application of ABC theory to BGs can effectively reduce the irrational beliefs of new nurses, and whether this intervention can significantly improve the professional identity of new nurses. We hope that this method can provide a new idea and effective intervention to solve the problem of insufficient professional identity of new nurses, and provide a more solid theoretical foundation for the management and career development of the nursing industry.

Objects and methods
Objects
A total of 110 Chinese new nurses who had been working in a grade-A tertiary general hospital in Wenzhou, Zhejiang province within one year and were undergoing standardized training were selected as the study objects. All of them participated in this activity voluntarily with no history of mental illness. To ensure the balance of baseline characteristics between the two groups, we randomly assigned 110 new nurses to the experimental group and the control group using a computer-generated random number table (by SPSS 25.0 software), with 55 in each group. The randomization process was performed by researchers who were not involved in the subsequent data collection to avoid selection bias. In addition, before randomization, we considered basic demographic variables such as gender, age, and education level for stratification to ensure a balanced distribution of the two groups on these key variables.

Scale
General information questionnaire
Designed by our own researchers, general demographic data include gender, age, educational background, work with budgeted posts, married or not, monthly income, etc.

Nurses' professional identity assessment
Using nurses' professional identity rating scale [16]. The questionnaire consists of 30 questions, including 5 dimensions as professional cognition, professional social support, professional social skills, professional frustration coping and professional self-reflection, from "very inconsistent" to "very consistent", calculated as 1 to 5 points with 5-point Likert scale, contributing to the total score range from 30 to 150 points. The higher the total score, the higher the level of professional identity. The total low, relatively low, medium to high scores are $30 \sim 60$, $61 \sim 90$, $91 \sim 120$, and $121 \sim 150$ respectively. The Cronbach's α coefficient of this scale is 0.938, and the split-half reliability is greater than 0.880.

Irrational beliefs assessment
Using the irrational beliefs rating scale [17], this scale accords with the characteristics of Chinese culture and people's emotional changes. There are 22 questions in

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the table, including 3 dimensions: low frustration tolerance, summarized comment, and absolute requirements. Each item was scored with a 5-point Likert scale, from "completely disagree" to "completely agree", which was rated as 1 to 5. The higher the total score, the more irrational the belief is, and the higher the score of each dimension, the more prominent the irrational belief is in this respect. The Cronbach's α coefficient is 0.874, the reliability is 0.870, and the validity is 0.848.

Methods

A total of 110 samples in this study were selected from Chinese new nurses who were voluntarily enrolled during their standardized training period and with no history of mental illness, and then were randomly divided into an experimental group and a control group. The experimental and control groups were assessed with the *Questionnaire Star*, including the general information questionnaire, nurses' professional identity rating, and irrational beliefs rating scale. Research time: 4 months after entry of new nurses (before BG) and 11 months after entry of new nurses (after BG).

The experimental group of 55 people was randomly divided into five groups of 11 people each, and the BGs were carried out every fortnight, and each person participated in four activities in accordance with the practical norm of the BG developed by The International Balint Federation. In order to ensure the quality of BG activities, we have appointed two professionally certified counselors as BG leaders, both of whom hold a national Level 2 counselor certificate and have more than 300 h of experience in independently organizing BGs. Each leader participated in the BG Code of Practice training developed by the International Balint Federation. Throughout the intervention, all BG activities were carried out in strict accordance with established processes, and the execution of the activities was monitored through regular feedback meetings and observation records. In addition, an external supervisor will audit the BG meeting once a week to ensure that leaders adhere to the guidelines and provide timely recommendations for improvement. The control group did not receive additional interventions other than routine hospital training. In order to maintain the BG intervention, the only variable between the two groups, the control group members continued to follow the hospital's standard operating procedures for daily work and study. Throughout the study period, control group members did not participate in any form of BG activities or other special training that could affect the results of the assessment of professional identity or irrational beliefs.

Control of confounding factors

In order to minimize the impact of potential confounders, we took several steps during the study design phase. We balanced the differences between the two groups by matching baseline characteristics (e.g., gender, age, education, etc.). We restricted the control group's participation in any additional activities that might alter professional identity or irrational belief states. All participants signed an informed consent form at the beginning of the study, promising not to participate in other psychological support programs of a similar nature throughout the study period. Finally, we used covariate adjustment in the data analysis phase to include individual and socioeconomic factors that may influence the results into the regression model to further control for confounding effects.

The workflow of BG from the perspective of ABC theory

BG: a psychological counseling group that focuses on the working relationship, it brings influence as well as an intervention to the main body under a dynamic frame [18]. During group activities, under the guidance of the BG leader, a safe psychological environment was created to easily open members' hearts, thus encouraging them to talk, and share the setbacks, sadness, grievance, confusion, disappointment and so on in their working experiences. In homogeneous groups, it is easy for the new nurses to resonate and exert the group dynamics to sympathize and support presenters. Meanwhile, under the guidance of the group leaders, members learn to stand in the different character's shoes, experience the feelings of different roles and respond, trying their best to provide the emotional changes aroused by different cognitions.

Intervention from the perspective of ABC theory of emotion: the group leaders guided the case presenters to find out the emotional, cognitive and behavioral responses related to the event, and conducted group discussions, to invoke the members to reflect on the negative emotion, irrational cognition and behavior reaction, to change the cognition and establish rational beliefs.

Homework assigned after the activity: group members wrote down two negative emotional events in work and completed the cognitive behavior record based on ABC theory, to deepen members' understanding and then strengthen the application of the emotion regulation function of ABC theory, and discussed it in the summary stage of the next activity.

(1) Group formation: all members sat in a circle to carry out activities. The group leader led warm-up activities, and formed a team contract. Members could carry out warm-up exercises in many forms

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such as mood forecast, mindfulness relaxation, and self-introduction.

(2) Case sharing: the group leader invoked a member volunteer to describe a real case encountered during their clinical work, which could bring negative emotions and certain physical reactions to participants, and the emotional changes and inner confusion could be solved by measures in the activities. Each activity only focused on one case for discussion, if more than one member provided cases, participants could voluntarily apply or vote to produce the discussion case.

(3) Presentation and illumination: the presenter needed to present a concise account of the issues to be discussed in the case, while the rest members needed to listen and reflect carefully, and asked questions about the details and factual aspects of the case.

(4) Case discussion: guided by the group leader, members engaged in a divergent imagination or role-playing, to taste the exact emotions and thoughts of the various roles in the event, and expressed their feelings about the various roles in the event freely. In this period, the presenter was temporarily outside the circle to listen and feel the team members' thoughts and emotions.

(5) Case summary: the presenter returned to the circle to deliver a summary speech, based on the statements of each member, to re-experience and express fresh understanding and thoughts on the case, as well as his emotional changes and feelings.

(6) ABC theory intervention: the group leader guided the group members to discuss from the perspective of ABC theory.

(7) Activity summary: the group leader launched a summary speech, acknowledged the case presenter, and asked each member to share their inspiration using one sentence.

(8) Completing the cognitive behavior inventory after the activity.

Statistical analysis

SPSS 25.0 was used to analyze the data. Numeric data were expressed as mean, and standard deviation to make descriptive statistics. The correlation between the two groups was analyzed using Pearson's chi-squared test, with $P < 0.05$ considered to indicate a statistically significant difference.

Results

Objects analysis

Control group: 52 females, 3 males, aged between 20 and 30 (average 23.7 ± 0.5) years old, 48 people with bachelor's degree or above; Experimental group: 51 females, 4 males, average (23.6 ± 0.6) years old, 53 people with a bachelor degree or above. There was no significant difference between the two groups in terms of age and period of education ($P > 0.05$, Table 1).

Professional identity assessment

Before the BG intervention, there was no significant difference in the total scores of professional identity and scores of its five dimensions between the experimental group and the control group ($P > 0.05$); after the intervention, the total score of the nurses' professional identity and the scores of each dimension in the experimental group were all higher than those before the intervention, the difference was of statistically significant (t=3.85, $P < 0.001$, Cohen's d=0.74, 95% CI [0.42, 1.06], Table 2).

Irrational beliefs assessment

Before intervention on BG, there was no significant difference in the scores of irrational beliefs between the experimental group and the control group ($P > 0.05$); after the intervention, the total scores of

Table 1 Comparison of basic data between the two groups (%)

Variable	Category	Experimental group (*n* = 55)	Control group(*n* = 55)	Percentage(%)	*p*
Sex	Male	3	4	6.36	0.869
	Female	52	51	93.63	
Degree	Associate degree	7	5	10.90	0.15
	Bachelor degree	26	36	53.63	
	Master degree	22	14	32.72	
The type of budgeted posts	Hired by hospital	12	11	20.90	0.91
	Hired by government	37	39	69.09	
	Contractor	6	5	10.00	
Only child	Yes	11	9	18.19	0.62
	no	44	46	81.82	

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irrational beliefs and the scores of each dimension of irrational beliefs of nurses in the experimental group were all higher than those before the intervention, the difference was significant (t = −4.23, $P < 0.001$, Cohen's d = 0.87, 95% CI [0.56, 1.18], Table 3).

The correlation analysis of professional identity and irrational beliefs

Pearson's correlation analysis showed that there was a significant negative correlation between professional identity and irrational beliefs from each dimension ($r = -0.89$, 95% CI [−0.93, −0.85], $P < 0.001$; Table 4).

Discussion

Analysis of the status quo of new nurses' professional identity and irrational beliefs

Analysis of the status quo of the professional identity of new nurses

New nurses have just changed their status from students to nurses. The huge gap between the inherent beliefs formed in school education and the reality of the workplace, will bring a big cognitive impact on new nurses. At the same time, the transition period is complicated and challenging, even described as a transition shock [19], resulting in low professional identity of new nurses, or even resignation. No relevant research on the professional identity of new nurses has been found in foreign literature, and the data show that foreign countries tend to pay more attention to the professional identity

Table 2 Analysis of professional identity scores of new nurses before and after joining the BG ($\bar{x} \pm s$, $N = 55$)

Dimensions	Total score	Before intervention		After intervention	
		Control Group	Experimental group	Control Group	Experimental group
The total score of professional identity	150	106.58 ± 15.48	105.33 ± 16.75	106.58 ± 14.45	115.51 ± 14.03[bc]
Professional cognition evaluation	45	30.58 ± 4.94	30.56 ± 5.32	31.20 ± 4.54	34.25 ± 5.13[bc]
Professional social support	30	22.44 ± 3.59	22.20 ± 3.58	21.98 ± 3.03	24.67 ± 3.25[bc]
Professional social skills	30	20.49 ± 3.38	20.11 ± 3.72	20.51 ± 3.17	21.73 ± 3.13[ac]
Professional frustration coping	30	21.84 ± 3.23	21.51 ± 3.44	21.75 ± 2.97	22.84 ± 2.61[ac]
Professional self-reflection	15	11.24 ± 1.75	10.95 ± 1.93	11.15 ± 1.76	12.02 ± 1.88ac

Compared with the experimental group before intervention: [a]$P < 0.05$, [b]$P < 0.01$; Compared with the control group after intervention: [c]$P < 0.01$

Table 3 Analysis of irrational beliefs score of new nurses before and after participating in BG ($\bar{x} \pm s$, $N = 55$)

Dimensions	Total score	Before intervention		After intervention	
		Control Group	Experimental group	Control Group	Experimental group
The total score of irrational beliefs	110	60.16 ± 13.03	60.35 ± 15.27	59.98 ± 13.10	49.33 ± 12.30[ab]
Low frustration tolerance	45	27.76 ± 5.20	27.20 ± 6.12	26.69 ± 5.45	22.85 ± 5.06[ab]
Summarized comment	35	18.18 ± 5.08	18.44 ± 5.82	18.31 ± 4.88	14.35 ± 3.83[ab]
Absolute requirements	30	14.22 ± 4.11	14.71 ± 4.59	13.98 ± 3.49	12.13 ± 3.70[ab]

Compared with the experimental group before intervention, [a]$P < 0.01$; Compared with the control group after intervention, [b]$P < 0.01$

Table 4 The correlation analysis of career identity and irrational beliefs (r)

Projects	Cognitive evaluation	Social support	Social skills	Frustration coping	Self-reflection	The total score of identification
Low frustration tolerance	−0.87[**]	−0.75[**]	−0.88[**]	−0.84[**]	−0.78[**]	−0.90[**]
Summarized comment	−0.69[**]	−0.67[**]	−0.69[**]	−0.77[**]	−0.71[**]	−0.76[**]
Absolute requirements	−0.70[**]	−0.70[**]	−0.70[**]	−0.74[**]	−0.69[**]	−0.76[**]
The total score of irrational beliefs	−0.83[**]	−0.84[**]	−0.84[**]	−0.86[**]	−0.80[**]	−0.89[**]

[**] $P < 0.01$

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of clinical nurses [20–23].At present, the main ways to improve the professional identity of new nurses at home and abroad are to explore the influencing factors of the professionalism of nursing interns through cross-sectional research, so as to provide a basis for improving the professional identity of nursing interns. To establish a new language within the discipline through the think tank methodology of professional identity, so as to provide thinking for new nurses on how to become a professional nurse, so as to improve the professional identity of new nurses. Through clinical teaching behavior, the relationship between professional identity and transition shock can be adjusted, and the professional quality and critical thinking ability of new nurses can be improved, so as to improve the self-worth of new nurses and establish professional identity. In this study, professional identity assessment found that the control group and the experimental group of professional identity in a total score of 91 to 120, a medium level, in which the dimension of "professional cognitive evaluation" was obviously scored higher than those of "*Dimensions compared to occupation*", "professional social support", "professional social skills", "professional frustration coping" and "professional self-reflection", whereas "professional self-reflection" was significantly lower than the other four dimensions, indicating that Chinese new nurses identify with the nursing profession of high value, but lack of problem-solving ability when encountering difficulties work, resulting in emotional distress, existing certain degree of irrational beliefs.

Analysis of irrational beliefs of new nurses from the perspective of ABC theory

New nurses tend to generate some irrational beliefs during the transition period. Irrational beliefs were first proposed by the American psychologist Ellis, who described them as absolute requirements and distortions about oneself, others, the surrounding environment and things [24]. Nowadays, there mainly are four methods to intervene in irrational beliefs. In the 1950s, according to the famous "A-B-C" theory of personality traits, rational emotive behavior therapy (REBT) was established and developed by Ellis. In the 1960s, Beck changed bad cognition by changing the thoughts or beliefs and behaviors, and achieved the short-term psychotherapy method of CBT to eliminate the bad emotions and behaviors [25]. In the mid-1980s, *Flavell pointed out the awareness and thoughts during self-awareness with thoughts about cognitions as its core meaning*, and metacognitive therapy (MCT) [26] was constructed based on this. This study used ABC theory to intervene in irrational beliefs. ABC theory points out three basic characteristics of irrational beliefs: absolute requirements, over-summarized, and

extremely terrible. The absolute requirements are to take one's own will as the starting point and deem the event will absolutely happen or will not, such as "I must be successful" "Others must treat me well" and so on; over-summarized is to generalize the whole in a single angle, to generalize unilaterally with an unreasonable way of thinking, to evaluate the value of themselves with the outcome of a certain case; extremely terrible is to think that bad things can lead to very terrible results or even disaster.

This study found that the irrational beliefs of Chinese new nurses in the perspective of ABC theory included: evaluating themselves with the absolute belief that colleagues must approve of them, that patients must like them, and so on; easily generating over-summarized beliefs when encountering setbacks, for example, the despises from doctors, the scolds from teachers, and challenges from patients, believing themselves as particularly weak and incompetent, doubting their qualifications; carrying extremely terrible beliefs that their career will come into gloomy when facing mistakes in work.

The correlation between Chinese new nurses' professional identity and irrational beliefs analyzed from the perspective of the ABC theory

Professional identity is a positive evaluation of the nursing profession by Chinese nurses, A study on job burnout and turnover rate from Japan found that nurses' job burnout was related to irrational beliefs and automatic thoughts caused by irrational beliefs, which were unique to nurses. Nurses in hospitals who had left their jobs may have had job burnout, which was also confirmed by the study of Kubo(2007). As a testing tool for assessing career myths, Lufen Wang (2003), a Taiwanese scholar, also found that irrational beliefs as independent variables and career identity as dependent variables were typically correlated, the typical correlation coefficient for men to reach the significant level is 0.581,0.511 and 0.374, the canonical correlation coefficients of the considerable level of females were 0.622,0.411,0.223, meaning that irrational beliefs have a certain predictive effect on professional identity. This study found that there was a considerably negative correlation between Chinese new nurses' professional identity and irrational beliefs, suggesting that irrational beliefs may jeopardize Chinese new nurses' professional identity [27]. Several studies have shown that nurses' professional identity can be enhanced through external environmental changes such as career planning guidance and rational allocation of human resources [28]. However, these interventions mainly focus on external factors and rarely involve internal cognitive reconstruction. In contrast, this study adopted the ABC theory from the perspective of individual cognition, emphasizing the

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cognitive reconstruction of irrational beliefs, thereby more comprehensively enhancing professional identity. For example, the REBT proposed by Ellis and the CBT of Beck are both methods based on changing thinking or beliefs to eliminate negative emotions and behaviors [29]. In this study, by combining BGs with the ABC theory, not only did it help new nurses identify and adjust their irrational beliefs, but it also enhanced their emotional regulation ability and professional identity, which is similar to the above-mentioned classic psychotherapy methods but focuses more on group interaction and support. In real work, the growth of new nurses requires time and training, and the maturity of nurse skills, doctor-patient communication, and interpersonal relationships need a certain amount of time to shape. Therefore, exploring ways to transition the new nurses through the standardized training period smoothly and enhance their professional identity is necessary.

BG intervention from the perspective of ABC theory
The feasibility of BG intervention from the perspective of ABC theory
ABC theory is the core theory of rational emotional therapy [28, 30], in which A (activating events) represents the antecedent event, B (beliefs) represents the beliefs, and C (consequences) represents the emotional and behavioral changes that follow the antecedent event, rather than the common belief that A causes C. ABC theory emphasizes cognitive reconstruction, to reduce irrational cognition, build rational cognition, and promote individuals' ability to adjust and adapt.

In the BG, new nurses reported cases of work-related negative emotions (A the case), expressing emotional and physical responses to events (C the emotions and behaviors). The team leader guided the team members to experience every character in the cases, and to feel the emotions and express their opinions so that the team members realized that different individuals would have different emotions and behaviors when dealing with the same event, as a result of the individual's different perceptions (B the beliefs), bringing the presenter a new perspective in the case after integrating the perceptions of other members to acquire a new perception of the event, cognition, and emotion, and get out of the emotional impact of the original cognition.

Thus, both ABC theory and BG exert an effect on cognitive reconstruction. In this research, the cognitive behavior inventory was designed based on ABC theory after the completion of BG. Under the perspective of ABC theory, BG intervention combined the process of diagnosis, comprehension, working through, and re-education of ABC theory, which changed the irrational beliefs of new nurses, to further understanding of the role of ABC theory of emotional regulation, and the consolidation of rational beliefs.

The effectiveness of BG intervention from the perspective of ABC theory
The study found that after the intervention, the total score and the scores of all dimensions of professional identity in the experimental group increased significantly, while the total score and the scores of all dimensions of irrational beliefs decreased substantially. The irrational beliefs of the Chinese new nurses in the experimental group changed, which increased the dimensions of professional cognition evaluation and professional reflection, and promoted the rational reflection of their job. Meanwhile, Chinese new nurses learned ways to cope with setbacks, strengthen social skills through group activities, improve social support [29, 31], and enhance professional identity generally. As an effective way of psychological group counseling, BG can relieve irrational beliefs in the career to a certain extent, improving psychological capital, and reducing work stress, to enhance the professional identity of nurses.

This study applied ABC theory to BGs, providing a new perspective for the nursing field. ABC theory emphasizes the importance of cognitive reconstruction, arguing that emotional and behavioral responses are determined by an individual's interpretation of an event rather than the event itself. In BGs, members share negative experiences at work and re-examine their cognitive patterns with the support of the team. This combination enables participants to reflect on and adjust irrational beliefs in a safe environment, thereby promoting the development of professional identity. In addition, BGs, as a form of group psychological counseling, can create a supportive atmosphere in which members feel understood and accepted, which has a positive effect on reducing occupational stress and enhancing psychological capital. The results of this study further verified the applicability and effectiveness of BGs in the nursing field, especially when combined with ABC theory, it can provide more comprehensive psychological support for nursing staff.

Limitations
First, this study included only 110 new nurses, which is a relatively small sample size and may not be sufficient to represent the entire new nurse population. Future studies should consider expanding the sample size to improve the generalizability of the results. Second, all participants were from the same tertiary-level A hospital, which may cause the results to be affected by the culture of the specific institution. Multicenter studies can help evaluate the effectiveness of this intervention in different medical institutions. Third, this study was

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conducted in the Chinese context, so the results may have certain cultural specificity. The nursing environment and cultural background may be different in other countries or regions, and the universality of this intervention method needs to be further verified. Finally, this study relied on self-reported data from participants, which may be subject to social desirability effects or other subjective biases. Future studies can consider introducing objective indicators or third-party evaluations to reduce potential measurement errors.

Conclusion

In this study, we innovatively adopted the BG model based on the ABC theory of emotion to explore novel ways to enhance the professional identity of Chinese new nurses and further enrich the application of the BG model. The research time and sample size of this study are limited, thus, enlarging the sample size and increasing the number of intervention times to strengthen the persuasiveness of this study in the future is hoped to be done.

Declarations

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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