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ORIGINAL RESEARCH

Influence of Group Training Based on Psychological Capital Theory on Nursing Staff's Occupational Benefits and Job Satisfaction in an Infusion Preparation Center

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ABSTRACT

Context • While they play an increasingly important role in medication safety, nursing staff in an infusion preparation center also face high work intensity and high occupational-exposure risks. Psychological capital for nurses manifests as ab ability to overcome difficulties; nurses' perceptions of occupational benefits can enable them to think and function in a constructive and rational way in a clinical environment; and job satisfaction can influence the nursing quality.

Objective • The study intended to investigate and analyze the influence of group training based on psychological capital theory on the nursing staff's psychological capital, occupational benefits, and job satisfaction in an infusion preparation center.

Design • The research team performed a prospective, randomized controlled study

Setting • The study took place at the First Medical Center of the Chinese People's Liberation Army (PLA) General Hospital in Beijing, People's Republic of China.

Participants • Participants were 54 nurses working in the infusion preparation center at the hospital between September 2021 and November 2021.

Intervention • The research team randomly divided the participants into an intervention and a control group, each with 27 participants, using a random number list. Nurses in the intervention group received group training based on the psychological capital theory, while those in the control group received a routine psychological intervention.

Outcome Measures • At baseline and postintervention, the study compared the scores for psychological capital, occupational benefits, and job satisfaction between the two groups.

Results • At baseline, no statistically significant differences existed between the intervention and control groups on their scores related to psychological capital, occupational benefits, or job satisfaction. Postintervention, the intervention group's scores were significantly higher (1) for psychological capital—hope ($P = .004$), resilience ($P = .000$), optimism ($P = .001$), self-efficacy ($P = .000$) and total psychological capital score ($P = .000$); (2) for occupational benefits—career perception ($P = .021$), sense of belonging to a team ($P = .040$), and career benefit total score ($P = .013$); and (3) for job satisfaction—occupational recognition ($P = .000$), personal development ($P = .001$), relationships with colleagues ($P = .004$), the work itself ($P = .003$), workload ($P = .036$), management ($P = .001$), family and work balance ($P = .001$), and total score for job satisfaction ($P = .000$). Postintervention, no significant differences existed between the groups ($P > .05$): (1) for occupational benefits—identity of relatives and friends, self-growth, or nurse-patient relationships or (2) for job satisfaction—salary and benefits.

Conclusions • Implementing group training based on psychological capital theory can improve the psychological capital, occupational benefits, and job satisfaction of nurses in the infusion preparation center (*Altern Ther Health Med.* 2023;29(3):186-192).

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As an important part of the hospital, the main function of an infusion preparation center is to centrally allocate and manage intravenous drug and infusion therapy in various departments of the hospital.[1] At present, due to a lack of human resources in hospitals, the increasing psychological pressures for nurses have gradually affected their normal work.

Psychological Capital

Psychological capital reflects a positive state of mind, which includes four aspects: hope, resilience, optimism, and self-efficacy.[2] The psychological capital of nurses manifests in their ability to overcome difficulties firmly and in their psychological characteristics beyond their original nursing ability.[3] Researchers have increasingly applied psychological capital theory to nurses to allow them to explore their own value and enhance their career perception, their identity as nurses. Nurses with high levels of psychological capital may have higher job satisfaction, higher job engagement, and better job performance.

Two studies found that the four dimensions of psychological capital have a significant positive correlation with nursing ability, indicating that strong psychological capital has a positive predictive effect for nursing ability.[4,5] Three studies found that the level of psychological capital can have a positive, practical significance for promoting nurses' work performance and that psychological interventions can improve psychological capital in a targeted manner.[6-8]

A high level of hope, resilience, and optimism may support high self-efficacy and nursing ability. High self-efficacy may give a nurse confidence to face challenging work and be conducive to improvement in nursing ability and to the nurses' perception of occupational benefits. In addition, the more resilient nurses are, the more determined they may be to overcome difficulties in their work. Therefore, nurses should receive positive guidance while focusing on improving psychological capital in all dimensions.

Occupational Benefits

Occupational benefits refer to a career's benefits and to positive emotional experiences that nurses perceive in the work environment, which enable them to think and function in a constructive and rational way in a clinical environment.[9] In recent years, He et al and Bai et al proposed that providing a psychological intervention to nurses can help nurses to develop occupational recognition, which can be beneficial in positively adjusting their mental states, alleviating job burnout, and enhancing their occupational benefits.[10,11]

Occupational benefits include such factors as career perception, recognition of relatives and friends, a sense of belonging to a team, self-growth, and nurse-patient relationships. The relationship between an individual and others can affect that individual's psychology and behavior. Park et al found that a psychological intervention can improve the sense of personal achievement and have a positive effect on employees' emotions related to their profession and work engagement.[12]

Career perception, a sense of belonging to the team, and self-growth are closely related to an individual's perceptions of occupational benefits. A good teamwork relationship may effectively alleviate work pressure and allow nurses to have a more pleasant work experience. Career perception is positively correlated with the perception of occupational benefits,[13] and a psychological intervention can not only make nurses aware of their occupational development but also promote their growth and their perception of occupational benefits.

Due to the current shortage of nurses, it's necessary to study the relationship between psychological interventions, psychological capital, and a sense of professional benefit, which is related to nurses' job performance, job satisfaction, and job burnout.[13] However, adequate explanation is still lacking about the impact of psychological-capital enhancement for nurses' occupational benefits and job satisfaction in an infusion preparation center.[13]

Job Satisfaction

The factors affecting job satisfaction can include occupational recognition, salary and benefits, personal development, relationships with colleagues, the work itself, workload, hospital management, and family-and-work balance.

Job satisfaction is the main factor affecting the stability of the nursing team and also influences the overall quality of nurses and nursing quality. Low job satisfaction isn't conducive to the stability and progress of the nursing industry.[14]

Psychological capital is an endogenous capital different from social capital and human capital. After exploring the impact of psychological capital on job burnout and job satisfaction of pediatric nurses, two studies found that the nurses' prominent job burnout and low psychological capital played a mediating role in job satisfaction.[15,16]

Current Study

Nurses in the infusion preparation center need to be able to endure high work intensity and high occupational-exposure risk. The current study intended to investigate and analyze the influence of group training based on psychological capital theory on the nursing staff's psychological capital, occupational benefits, and job satisfaction in an infusion preparation center.

METHODS

Participants

The research team performed a prospective, randomized controlled study. The study took place at the First Medical Center of the Chinese People's Liberation Army (PLA) General Hospital in Beijing, People's Republic of China. Potential participants were nurses working in the infusion preparation center at the hospital between September 2021 and November 2021.

Potential participants were included in the study if they: (1) had been working in the infusion preparation center of the hospital for more than one year, (2) possessed the Nurse Qualification Certificate, and (3) had a college degree or above.

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Table 1. Group Training Based on Psychological Capital Theory

Training	Activity Theme	Activity Goals	Activities	Time
1	**Establishing a Group**	1. To establish the group, promote mutual understanding among the group's members, and make the group's content more familiar to the members 2. To explain the theoretical knowledge of psychological capital	1. Establish the group and clarify the purpose and meaning of the activity. 2. Explain the knowledge of psychological capital theory and establish the awareness of positive psychology.	60 min
2	**Boosting Self-efficacy**	1. To allow members to understand the importance of self-efficacy 2. To help members to stimulate inner potential and enhance self-confidence	1. Explain self-efficacy and self-affirmation skills and strategies. 2. Guide members to discover their own advantages, have the courage to express themselves, give themselves positive evaluations, and enhance self-confidence. 3. Encourage members to discuss times when they feel stressed at work and master self-affirmation skills and strategies.	60 min
3	**Cultivating Optimism**	1. To help members to grasp the theory of optimism 2. To help members to master the correct way to deal with negative events and to be more optimistic	1. Explain the theoretical knowledge of optimism. 2. Provide members with methods of correctly dealing with negative emotions, such as positive psychological suggestions, acceptance of the present, self-identification, and setting of work goals. 3. Guide members to discover the positive aspects of events and to be more optimistic through role-playing and other methods.	60 min
4	**Building Hope**	1. To help members to master the theory of hope 2. To mobilize members to be positive and more hopeful	1. Give an overview of hope. 2. Provide methods for members to be more hopeful, such as hearing others' voices, goal progressive method, and relaxation meditation 3. Guide members to participate in activities, such as giving hugs of love and encouraging members to discuss and share their feelings.	60 min
5	**Enhancing Resilience**	1. To help members to recognize the importance of enhancing resilience 2. To help members to master the ways to cope with stress and improve mental resilience	1. Explain the theoretical knowledge of resilience. 2. Explain psychological adjustment and stress coping methods, such as communication skills and mindfulness stress reduction theory. 3. Guide members to learn relaxation methods, such as body scanning and mindfulness breathing.	60 min
6	**Sharing Gains**	1. To promote members to share the learning experience with each other 2. To help members to clarify job goals and make career plans	1. Guide members to make career plans and explore feasible ways to achieve their goals. 2. Summarize the activity and give members' opportunities to share their gains and suggestions.	60 min

Potential participants were excluded from the study if they: (1) had a history of mental illness, (2) needed to be transferred from their current positions for special reasons, (3) were rotational and practice nurses, or (4) had had major psychological stress reactions due to family or other events. All participants signed an informed consent form. This study was approved by the ethics committee and was performed complying with the Helsinki Declaration.

Procedures

Groups. The research team was randomly divided participants into an intervention and a control group, each with 27 participants, using a random number list. The group assignment was double blinded.

Construction of the intervention. After a survey, the hospital found that the job performance and job satisfaction of nurses were related to their job burnout. How to improve nurses' occupational benefits became an important clinical problem. Administrators expected group training based on the psychological capital theory could decrease the psychological pressures and improve the work efficiency of the nursing staff.

Based on the psychological capital intervention (PCI) model that Professor Fred Luthans developed in 2006,[17] the research team developed the intervention. The team also performed a literature review to optimize the training method and semistructured interviews with experts in the field of nursing were also conducted to develop the group training.

Implementation of the intervention. In implementation of the intervention, a member of the research team, a nurse in charge, served as the main person performing the intervention. Each unit of the content lasted 60 min, with the training being conducted once every 2 weeks with one unit each time, for a total of 6 times in 3 months. See Table 1 for details.

Outcome measures. At baseline and postintervention, the participants study completed the psychological capital questionnaire (PCQ-24),[18] an occupational benefits questionnaire, and the nurses' job satisfaction questionnaire (NJSQ). The research team compared the scores of the two groups.

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Intervention

Control group. The control group received routine guidance that included instruction in the professional theoretical knowledge of nursing and information about the good professional knowledge and skills that the hospital cultivates with nursing staff, according to standard operating procedures and training plans. These included proficiently mastering common nursing techniques and equipment performance.

In addition, hospital managers formulated rules and regulations for each nurse to be professionally trained and regularly held skill competitions, lectures, and on-the-job training as well as team discussions, so that the nurses were able to gain valuable experience from each other while learning relevant skills. The managers also encouraged nurses with intermediate job titles or above to help new nurses, because only by mastering theoretical knowledge and operational skills can new nurses attain competency for work and relieve psychological pressure.

Intervention group. The intervention group received group training based on psychological capital theory on the basis of the control group. The core of the PCI model includes four aspects: (1) building hope, (2) cultivating optimism, (3) improving self-efficacy, and (4) enhancing resilience.

Building hope. This aspect refers to persevering in reaching goals and adjusting the ways the nurses try to achieve goals when necessary to achieve success. Goals, paths, and motivations influence individual hopes. When developing a task-related goal, an individual should devise multiple paths to achieve the goal and develop a plan to overcome obstacles in the path. Hope is the driving force for success and can empower people to achieve goals.

Cultivating optimism. Optimism means that an individual has a positive explanatory and attribution style, can enjoy work and life, can be grateful, and can remove interference and draw a lesson from adversity. In the process of making plans to overcome obstacles in a path, individuals should continue to expect that they will achieve a goal, reduce negative thinking, and aim for a high level of optimism.

Improving self-efficacy. Self-efficacy is an individual's estimation of the possibility of completing a particular task. Self-efficacy is variable and an individual can improve it by being confident in the face of challenging work and making necessary efforts to achieve success. The individual can devise intermediate goals and realize them first. Then the individual can finally achieve the overall goal through continuously realizing each intermediate goal. Due to continuous achievement of goals, individuals can have positive expectations and stronger self-efficacy.

Enhancing resilience. This goal refers to an individual's ability to quickly adjust to and recover from adversity or failure and react to positive events. It can guide individuals to actively seek out personal resources when they experience adversity or problems bother them and to use those resources as much as possible to overcome obstacles. In that way, individuals can recognize their feelings and thoughts in the face of adversity and choose to consider their choice of resources and methods to overcome obstacles in a more resilient way.

Outcome Measures

PCQ-24. [18] The study used the PCQ-24, Chinese version, that had been evaluated, translated, and revised in accordance with Luo Hong and others. The questionnaire included 20 items with four dimensions: hope, resilience, optimism, and self-efficacy. According to the Likert six-grade, point-scoring method, a participant's score could range from 20 to 120 points in total. Higher scores represent a higher level of psychological capital for the nurses than a lower score does. The Cronbach's α coefficient of this questionnaire is 0.923.[18]

Survey of occupational benefits.[19] The research team conducted a survey of occupational benefits the nurses' occupational benefits questionnaire edited by Hu Jing and other experts in 2013. It's used to evaluate the level of occupational benefits of nurses in China and includes five survey dimensions with 33 items. The five dimensions are career perception, identity of relatives and friends, sense of belonging to a team, self-growth, and nurse-patient relationships.

Each item uses a Likert, five-point scoring method, ranging from strongly disagree to strongly agree, with a scale from one to five points, with 165 points in total for the 33 items. A higher score represents a higher level of nurses' occupational benefits than a lower score does. The total Cronbach α coefficient of the questionnaire is 0.958, and the content validity is 0.974.[19]

NJSQ.[20] The research team evaluated the nurses using the NJSQ scale created by Li Xiaomei and Liu Yanjun, which covers eight dimensions with 38 items. The items include occupational recognition, salary and benefits, personal development, relationships with colleagues, the work itself, workload, management, and family and work balance.

Each item uses a Likert five-point scoring method, and a higher score represents nurses' higher satisfaction with the work than a lower score does. The validity of the questionnaire is 0.94.[20]

Statistical Analysis

The research team used the SPSS 21.0 statistical software (IBM, Amunk, New York, USA) for statistical analysis. The team: (1) expressed quantitative data as means ± standard deviations (SDs) and used the *t* test for the comparisons between groups and (2) expressed qualitative data as frequencies and percentages (%) and used the χ^2 test for comparison. $P < .05$ indicated a significant result.

RESULTS

Participants

The research team included and analyzed the data of 54 participants, 27 in each group (Table 2). No statistically significant differences existed between the groups in age,

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working years, gender, education, marital status, or job title ($P > .05$). For the intervention group, 16 participants were aged <30 years old (59.56 %), and 25 were female (92.59%). For the control group, 14 participants were <30 years old (51.85%), and 27 were female (100.00%).

Psychological Capital

Table 3 shows that no statistically significant differences existed at baseline between the intervention and control groups in any dimension ($P > .05$). Postintervention, the intervention group's scores for all dimensions were significantly higher than those of the control group: hope ($P = .004$), resilience ($P = .000$), optimism ($P = .001$), self-efficacy ($P = .000$), and total psychological capital score ($P = .000$).

Occupational Benefits

Table 4 shows that no statistically significant differences existed at baseline between the groups in any category ($P > .05$). Postintervention, the intervention group's scores for career perception ($P = .021$), sense of belonging to a team ($P = .040$), and career benefit total score ($P = .013$) were significantly higher than those of the control group. No significant differences existed between the groups postintervention in the scores for identity of relatives and friends, self-growth, or nurse-patient relationships ($P > .05$).

Job Satisfaction

Table 5 shows that no statistically significant differences existed at baseline between the groups in any category ($P > .05$). Postintervention, the intervention group's scores for occupational recognition ($P = .000$), personal development ($P = .001$), colleague relationships ($P = .004$), the work itself ($P = .003$), workload ($P = .036$), management ($P = .001$), family

Table 2. Comparison of Demographic Characteristics Between the Intervention and Control Groups

Characteristics	Intervention Group n = 27 n (%)	Control Group n = 27 n (%)	χ^2	*P* value
Age, y			0.514	.773
<30	16 (59.26)	14 (51.85)		
30-40	10 (37.04)	11 (40.74)		
>40	1 (3.7)	2 (7.41)		
Working years			2.537	.281
<5	8 (29.63)	10 (37.04)		
5-10	10 (37.04)	13 (48.15)		
>10	9 (33.33)	4 (14.81)		
Gender			2.077	.15
Male	2 (7.41)	0 (0.00)		
Female	25 (92.59)	27 (100.00)		
Education			3.654	.161
College	3 (11.11)	8 (29.63)		
Undergraduate	23 (85.19)	19 (70.37)		
Master	1 (3.7)	0 (0.00)		
Marital Status			1.543	.214
Married	9 (33.33)	5 (18.52)		
Unmarried	18 (66.67)	22 (81.48)		
Job Title			3.208	.201
Nurse	11 (40.74)	5 (18.52)		
Nurse in charge	14 (51.85)	19 (70.37)		
Associate chief nurse	2 (7.41)	3 (11.11)	-	-

Table 3. Comparison of Psychological Capital Scores Between Intervention and Control Groups

Group	n	Hope		Resilience		Optimism	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	23.47 ± 3.92	29.04 ± 4.16	19.53 ± 2.74	26.30 ± 2.27	11.35 ± 1.94	15.73 ± 1.76
Control	27	24.20 ± 4.10	25.38 ± 4.76	20.31 ± 3.45	22.75 ± 3.94	12.00 ± 2.38	13.85 ± 2.14
t		-0.669	3.008	-0.920	4.057	-1.100	3.526
P value		.507	.004[a]	.362	.000[a]	.276	.001[a]

Group	n	Self-efficacy		Total Psychological Capital Score	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	19.64 ± 3.30	26.81 ± 3.00	73.99 ± 7.20	97.88 ± 7.04
Control	27	19.00 ± 2.95	21.77 ± 4.27	75.51 ± 6.84	83.75 ± 8.67
t		0.751	5.018	-0.795	6.574
P value		0.456	.000[a]	.430	.000[a]

[a]$P < .05$, indicating that the intervention group's scores for all dimensions were significantly higher than those of the control group postintervention

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Table 4. Comparison of Occupational Benefit Scores Between Intervention and Control Groups

Group	n	Career Perception		Identity of Friends and Relatives		Sense of Belonging to the Team	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	29.68 ± 4.47	34.72 ± 4.84	24.79 ± 4.00	25.58 ± 4.47	22.00 ± 2.96	25.17 ± 3.50
Control	27	28.54 ± 4.23	31.67 ± 4.55	24.20 ± 3.86	25.13 ± 4.24	22.46 ± 3.13	23.03 ± 3.94
t		0.963	2.386	0.552	0.380	-0.555	2.110
P value		.340	.021[a]	.584	.706	.581	.040[a]

Group	n	Self-growth		Nurse-patient Relationship		Career Benefit Total Score	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	24.17 ± 3.48	22.55 ± 2.75	22.55 ± 2.75	24.16 ± 2.80	123.19 ± 7.86	137.99 ± 11.42
Control	27	24.78 ± 4.03	22.24 ± 3.23	22.24 ± 3.23	23.67 ± 3.32	122.22 ± 8.44	130.56 ± 9.67
t		-0.595	0.380	0.380	0.586	0.437	2.580
P value		.554	.706	.706	.560	.664	.013[a]

[a]$P < .05$, indicating that the intervention group's scores for career perception, sense of belonging to a team, and the career benefit total score were significantly higher than those of the control group postintervention

Table 5. Comparison of Nurses' Job Satisfaction Scores Between Intervention and Control Groups

Group	n	Occupational Recognition		Salary and Benefits		Personal Development	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	13.68 ± 2.32	17.43 ± 2.04	11.63 ± 2.40	14.14 ± 2.53	10.38 ± 2.73	15.15 ± 2.68
Control	27	13.15 ± 2.40	14.66 ± 2.32	12.03 ± 2.27	13.31 ± 2.48	11.00 ± 2.86	12.41 ± 3.02
t		0.825	4.659	-0.629	1.217	-0.815	3.526
P value		.413	.000[a]	.532	.229	.419	.001[a]

Group	n	Colleague Relationship		Work Itself		Workload	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	18.26 ± 2.35	21.77 ± 2.41	13.73 ± 3.13	18.60 ± 3.38	21.78 ±4.90	26.81 ± 4.33
Control	27	17.75 ± 2.56	19.65 ± 2.80	14.20 ± 3.45	15.61 ± 3.62	22.24 ± 4.63	24.15 ± 4.72
t		0.763	2.982	-0.524	3.137	-0.355	2.158
P value		.449	.004[a]	.602	.003[a]	.724	.036[a]

Group	n	Management		Family and Work Balance		Total Score for Job Satisfaction	
		Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD	Baseline Mean ± SD	Postintervention Mean ± SD
Intervention	27	21.63 ± 3.68	28.57 ± 4.82	3.14 ± 1.20	6.44 ± 1.85	114.23 ± 9.12	149.51 ± 13.28
Control	27	22.07 ± 3.50	24.14 ± 4.58	3.41 ± 1.16	4.72 ± 1.69	115.85 ± 8.80	128.65 ± 11.77
t		-0.450	3.462	-0.841	3.567	-0.664	6.108
P value	-	.654	.001[a]	.404	.001[a]	.509	.000[a]

[a]$P < .05$, indicating that the intervention group's scores for occupational recognition, personal development, colleague relationships, the work itself, workload, management, family and work balance, and total score for job satisfaction were significantly higher than those of the control group postintervention

and work balance ($P = .001$), and total score for job satisfaction ($P = .000$) were significantly higher than those of the control group. No significant differences existed between the groups postintervention in the scores for salary and benefits ($P > .05$).

DISCUSSION

The current study was the first to conduct an intervention to create psychological capital for nurses in an infusion preparation center. The main factors related to the nursing ability of nurses in a infusion preparation center are hope, resilience, and optimism.

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The current study used an intervention based on psychological capital theory to improve the psychological capital, perception of occupational benefits, and job satisfaction of nurses in the infusion preparation center. That intervention was able to guide nurses in how to adjust their mental states and master work skills, develop an open and positive attitude in the process of communicating with peers or leaders, jointly create a harmonious and healthy working environment, and cultivate a stable attitude in the rush of work.

A psychological intervention can endow nurses psychologically with internal motivation, namely psychological capital, that can create greater resilience, a positive attitude and a strong ability to cope with work pressures and setbacks. Correspondingly, nurses can also gain more professional skills and job satisfaction in the process.

Therefore, the hospital must focus on improving the current situation of nurses in various departments and formulate some strategies to give full play to each nurse's best characteristics, so that the nurses can experience the actual benefits of their occupation. Hospital managers should actively conduct psychological interventions for nurses in a hospital, formulate incentive mechanisms, and provide convenient conditions for nurses to study, to make nurses love their occupations more.

The current study had some limitations. To ensure the authenticity and validity of the current study in future research, the researchers need to expand the sample size and sampling scope and extend the study's length.

CONCLUSIONS

Implementing group training based on psychological capital theory can improve the psychological capital, occupational benefits, and job satisfaction of nurses in the infusion preparation center.

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