

Analysis of Incentive Optimization Measures for Nurses in Public Hospitals in China

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Abstract

"Human resources" are the core resources of medical institutions, and maintaining a stable and reasonably structured health human resources team is the key to ensuring that medical institutions meet the needs of the people for medical services. How to effectively and strategically enhance nurses' work intention, better motivate nurses, maintain the stability of nursing human resources, and thus improve work efficiency and clinical quality, is the key to maintaining the competitiveness of public hospitals and the primary issue for their long-term sustainable development. The results of univariate analysis, multivariate linear analysis, and structural equation modeling show that job motivation, perceived job benefit, and job position are independent influences on work intention, and that intrinsic and extrinsic motivational incentives have a direct and significant effect on nurses' work intention, as well as an indirect and significant effect through the mediating variable of perceived occupational benefit. Combined with qualitative interviews, this study summarizes effective incentives based on the combination of internal incentives and external incentives. Among them, external incentives mainly include increasing organizational support, flexible management methods, reasonably increasing salaries, and improving night shift scheduling method; internal incentives mainly include increasing attention and care, providing career development opportunities, balancing work and family relationships, and establishing good interpersonal relationships. This study provides a theoretical basis for formulating incentive optimization measures and suggestions for nurses in Z hospital, in order to extend it to nurse incentive practice in Shanghai and equivalent public hospitals across the country, and better improve the willingness of nurses to work.



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Introduction

The "Notice of the National Health Commission on Issuing the National Nursing Career Development Plan (2021-2025)" clearly pointed out that it is necessary to improve the hospital compensation mechanism, increase the investment in the development of key disciplines and personnel training, enhance the job satisfaction of medical staff, and change the behavioral orientation of medical staff in accordance with the requirements of further deepening the reform and development of medical care and nursing. This has become the key to improve the quality of medical and health services and the efficiency of resource allocation (Wu, Deng & Zhang, 2020). In the implementation of nursing position management as an entry point, hospitals need to continuously reform and innovate nursing management mechanisms, especially in terms of nurses' human resources, and need to continuously explore new scientific methods to continuously improve the quality of nursing services (Guo, Wang, Jia, Zhao, Shi, 2017). Nurses are not only responsible for the whole life cycle management of preventive care, rehabilitation after illness and integrated treatment and convalesce, but are also the main force in hospital operations. How to make nurses adapt to social needs, cultivate nurses' abilities, retain nurses and effectively exert their work enthusiasm, promote the healthy development of nursing teams, and explore the optimization of nurses' incentive system is a problem worth thinking about. In the aspect of nursing human resources, the national nurse shortage is about 800,000, and the annual supply and demand of nursing graduates show a large gap. Nurses are still in short supply, and the number of professional training in colleges and universities is far from keeping up with this demand. Simultaneously, the turnover rate of nurses is relatively high. For example, in Shanghai, about 5% to 6% of nurses leave their jobs every year. In addition, the continuous expansion of hospital beds has also increased the mobility of hospital nurses at all levels. Many large Grade A tertiary hospitals in Shanghai recruit more than 100 nurses every year, while only a few universities in the city train nurses with bachelor's degrees, which can be described that the supply can hardly keep pace with the demand. This study takes the Grade A tertiary public hospital in Shanghai as the research scope, selects the nurses of the Grade A tertiary public hospital as the research object, and reasonably describes the team characteristics and work attributes of the nurses, and takes the intrinsic and extrinsic motivation as the logical starting point to explore the formation mechanism and promotion strategy of work intention of the Grade A tertiary public hospital. Based on the above analysis, the main questions of this study are put forward: (1) How do incentive mechanism affect nurses' work intention?(2) When the demand for nursing services is large and the number of nurses is relatively short, how can Grade A tertiary public hospital optimize the incentive mechanism to promote the willingness of nurses to work? (3) Faced with the phenomenon of insufficient number and low stability of the nurse team, how to retain nurses and improve their work intention?

Literature Review

Work Intention

According to Li (2006), work intention refers to the intensity of the tendency of graduates or serving staff to choose a certain job position or engage in a specific job, rather than looking for other job opportunities. Nurses' work intention is the idea of continuing to work in their original units and positions after thinking deeply about their career development (Covin, Johnson, Craven & Marsh, 2008). Work intention is an important factor in determining whether an employee can remain at work and continue to work. There are many different options available to nurses after leaving a job, some may simply change hospitals or choose a different position to continue nursing or a job highly related to nursing. But some nurses will leave the nursing profession entirely for jobs unrelated to nursing. This study defines nurses' work intention as the intensity of their tendency to stay in the nursing profession rather than seek

job opportunities in other professions. In this study, the occupational commitment scale for nurses developed by Pei (2007) was used to investigate nurses' professional identity and their psychological tendency to be unwilling to change careers, namely, their work intention. There are many factors that affect nurses' work intention. The following will describe in the following three aspects: nurses' personal factors, work factors, and organizational factors. First, the personal factor of the nurse. The personal factors that affect nurses' work intention are divided into two aspects: demographic factors and personal psychological factors. Among them, demographic factors include gender, age and working years, educational background, marital status, job title and professional title, staffing and income level, etc.; personal psychological factors include work stress, job burnout, job satisfaction, psychological capital and organizational commitment, etc. (Lwin, Rattanapan & Laosee, 2017). The second is organizational factors, including organizational support, organizational justice, structural empowerment, and leadership style.

(1) Sense of organizational support: Organizational support is a combination of employee support from the organization, superiors, and fellow employees. Research by Zhao, Feng & Zhao (2015) shows that organizational support promotes nurses to have greater motivation and enthusiasm for work, and greater work intention.

(2) Organizational justice: Organizational justice is one of the important components of organizational support. Guo, Xiao & Wang (2010) pointed out that organizational justice involves three aspects: distributive justice, interpersonal justice and information equity, and is the basic need for nurses to work in hospitals. Organizational justice can increase nurses' trust in their work and enhance nurses' work intention (Wang, Wang, Guo & Xie, 2014).

(3) Structural empowerment: It refers to the organization providing employees with the information, support, and resources they need to work to promote better employee development and create an effective work environment (Avolio, Zhu, Koh & Bhatia, 2004). Zhang's (2014) research shows that proper delegation of authority can improve nurses' sense of work control and autonomy.

(4) Leadership style: Different leadership styles are one of the factors affecting nurses' work intention. By influencing the nursing work environment, leadership style indirectly affects nurses' work intention (Cowden, Cummings, Profetto & McGrath, 2011). Nursing managers with transformational leadership tend to encourage nurse engagement, share decision-making processes with nurses, and motivate and support nurses to achieve organizational goals, promoting nurses' work intention (Liang, Tang, Wang, Lin, Yu, 2016). When nurses have a strong sense of identity, they are more likely to trust their leaders and teams and are more willing to express their opinions and suggestions.

The third is work-related factors, including work control, work environment and other factors.

(1) Work control: Work control is an important factor in work characteristics, involving the control of work resources, work efficiency and work environment. Among them, work resources positively affect individual prosperity (Lin, Wang & Li, 2022). Another study has shown that job control has a direct effect on nurses' turnover behavior, and by improving nurses' sense of job control, nurses' willingness to quit can be reduced (Jin, Shi & Cui, 2014).

(2) Working environment: Nurses' working environment covers five aspects: the foundation of high-quality nursing quality, the relationship between nurses, the leadership of nursing managers, adequate staffing and resources, and nurses' participation in hospital affairs. It can not only serve as a motivational factor to promote positive psychological states (such as work engagement), but also as a protective factor to reduce negative states (such as burnout), which will further promote nurses' work willingness (Wan, Li, Zhou & Shang, 2018).

To sum up, many factors from the nurse's personal level, organizational level and work level will affect the nurse's work intention.

Motivation

Motivation refers to the process of satisfying individual needs. After an individual generates a need, the need can become a driving force for individual behavior. The intensity of this driving force will affect the individual's behavior and motivate people to make continuous efforts to meet their own needs (Stephen & Coulter, 2013). Motivation is a psychological satisfaction. Goals, needs and abilities are the three elements of motivation (Zhao, Yang, 2012). Motivation is the psychological process that continuously stimulates people's motivation (Yu, 2014). In enterprise management, motivation refers to stimulating the potential of employees as much as possible through various effective methods, fully mobilizing the enthusiasm and creativity of employees, and finally maximizing the personal value of employees and the interests of the enterprise.

Nurse Motivation Research

Foreign scholars' research on nurse incentives started early and took a long time to study; while domestic scholars' research on nurse incentives started late. With the advancement of the new medical system reform, domestic scholars have also begun to pay attention to the research on nurse incentives.

(1) Nurse motivation method

There are two aspects to the research on nurses' motivation methods at home and abroad, one is material motivation, the most common way is salary incentive; the other is non-material motivation, the most common is spiritual motivation. Salary incentives are incentives that directly increase nurses' salaries, bonuses, and various subsidies (Zuber & Conzelmann, 2019; Teixeira et al., 2020; Shan, 2019; Li, 2019; Wu, Wang, 2019). The role of salary incentive is more direct than that of spiritual incentive, but the role of spiritual incentive cannot be ignored.

Material incentive

Material incentives have obvious motivational effects on nurses. A study of 424 randomly selected nurses in 125 health care facilities in Ethiopia found that paying reasonable salaries increased nurses' job satisfaction and motivation (Ayalew et al., 2019). Li, Zhang, Zhou, Zhang & Liu (2015) surveyed nurses in 6 county-level public hospitals in Heilongjiang Province and found that compensation incentives are the key to organizations attracting, retaining, and motivating talent. There are also studies showing that improving the pay-for-performance compensation incentives in hospitals can improve the work efficiency of nurses, thereby improving the management effect of hospitals (Chen et al., 2016). Therefore, salary incentives can effectively stimulate nurses' work enthusiasm.

Immaterial incentives

Immaterial incentives was first introduced by management guru Simon in the 1950s and is primarily concerned with the survival, relationship and growth aspects of nurses. In a stratified random sampling survey of 200 nurses, Singh, Rostil, Ponce De Leon, Forsell, and Engström (2018) found that improving interpersonal management and doing a good job in nurse career planning have a positive impact on nurses' motivation and performance. In a survey and analysis of 640 nurses in 4 tertiary hospitals in Anhui Province, it was found that increasing the incentives for nurse training and education, and expanding the scale and proportion of nurses receiving education, had the greatest impact on nurses' work enthusiasm (Zhu et al., 2019).

However, the research on how incentives affect nurses' professional identity and how to systematically construct nurses' incentive optimization strategies is relatively rare and further research is needed.

Perceived professional benefit

Nurses' perceived professional benefit refers to the fact that nurses perceive the gains and benefits brought by their profession in the process of practicing, and agree that long-term engagement in the nursing profession can promote their overall growth (Hu, Liu, 2014). In developing the nurses' professional identity scale, Chen et al. (2007) proposed that the perceived professional benefit is an aspect of nurses' professional identity, which is a positive affective state in which individuals love the nursing profession, consider it valuable, and therefore experience contentment. When nurses reach a rational and correct understanding of nursing work and realize that the profession of nurses brings them rich medical resources and stable income, they will have a strong sense of professional identity. When they have a high sense of identity with the profession and recognize the meaning of the profession, nurses will tend to make behaviors that are beneficial to the group organization, and are willing to share their ideas and provide suggestions for the organization. Nurses with a high perceived professional benefit have more resources, such as material resources of stable income, energy resources of the recognition and support of friends and relatives. In order to maintain existing resources or obtain more resources, they will show more active investment behavior and actively offer suggestions for the organization to achieve goals. Nurses with a low perceived professional benefit tend to protect the few resources left, invest less resources in the organization, and make behavioral choices to stop losses in time. When nurses feel more support and attention from colleagues, leaders and organizations, they will have deep feelings for the team or organization, and feel that they have the responsibility to contribute to the development of the organization. Therefore, enhancing the perceived professional benefit of nurses will help strengthen the professional identity of nurses and stabilize the nurse team. At present, the research on nurses' occupational benefit mainly focuses on using quantitative research methods to explore the influencing factors and related factors of perceived professional benefit in different nurse populations. Among them, individual characteristics, such as nursing age, professional title, nature of employment, nurses' psychological capital and emotional intelligence, and working environment are all considered by empirical studies to be related to nurses' perceived professional benefit. Erickson, Holm & Chelminiak (2004) in the United States proposed in their study that nurses' "perceived professional benefit" may come from having the opportunity to change their predicament, being paid and needed in the process of helping others; self-satisfaction, having free time arrangements to accompany family and friends; having a stable job, being able to afford individual and family life, and having the motivation to keep learning. Lu's (2021) research shows that nurses' perceived professional benefit is positively correlated to organizational commitment, and the two are negatively correlated with organizational silence respectively. Studies by Jian, Yang, Jiang, Tian & Dong (2020) and Tyndall & Caswell (2017) at home and abroad have shown that the experience of perceived professional benefit for emergency department nurses stems from professional values, organizational support, a good working atmosphere, and family gain. Studies by He, Xu & Su (2016) and Li, Jia, Xu & Wang (2019) all showed that the sources of perceived professional benefit for oncology nurses mainly include specialist nursing knowledge and skills, scientific research ability, teaching ability, professional affirmation after helping patients, and colleague support and assistance. Zhang and Wang (2015) studied nurses' perceived professional benefit and innovative behavior, and the results pointed out that the higher the nurse's perceived professional benefit, the more conducive it is to stimulate nurses' innovative behavior and

improve the quality of nursing work. The creative quality and the rewards received by the creative proponents interact with the creative implementation (Dong, Wang, 2020).

Research Methodology

This study uses the research design of questionnaire survey combined with qualitative interview. The purpose of the research is to clarify the key elements that affect nurses' work intention, build an incentive mechanism model based on intrinsic and extrinsic motivation, formulate effective strategies and paths, and improve nurses' work intention. Through literature review, drawing on the research results of motivation theory, intrinsic and extrinsic motivation theory and nurse motivation, on this basis, a nurse's career development willingness model is formulated. Taking the on-the-job registered nurses in Shanghai public hospitals as the research object, and taking the on-the-job registered nurses in Shanghai Z Hospital as a sample, through a cross-sectional survey and a questionnaire survey method, the data are collected at one time. Using the general demographic data questionnaire, nursing staff incentive questionnaire, perceived professional benefit scale for nurses, and occupational commitment scale for nurses, a total of 355 nurses in Z Hospital were investigated by convenient sampling method, and the basic situation and career development elements of nurses in Z Hospital were collected, to explore the current situation of nurses' incentives in tertiary hospitals in China and their demographic differences. Through SPSS statistics and structural equations, this paper analyzes the mechanism of action and relationship between nurses' work intention and their perceived professional benefit, intrinsic motivation and extrinsic motivation, explores its influencing factors and mechanisms, and constructs a quantitative relationship model between nurses' work intention and perceived professional benefit, intrinsic motivation and extrinsic motivation. Qualitative interviews were used to explore the shortcomings of existing incentive mechanisms from nurses' perspectives. 15 nurses from Shanghai Hospital Z were interviewed to explain the process of influencing factors of nurses' work willingness on their work intention. The results of the quantitative and qualitative studies are conceptualized and summarized to finally construct a pathway for career development willingness of nurses in China's public hospitals and develop incentive measures and systems for nurses in tertiary public hospitals in Shanghai, with the aim of improving the nursing work environment, promoting nurses' work intention, improving the quality of nursing services, and enhancing the competitiveness of hospitals.

Population and sample

Research object

Z Hospital is a well-known large-scale comprehensive Grade A tertiary public hospital in China. It is very representative among large-scale public hospitals in China. There are 2,062 nurses in the hospital, accounting for more than 50% of the staff in the hospital.

(1) Population: On-the-job registered nurses in Shanghai public hospitals.

(2) Sample: On-the-job registered nurses in Z Hospital, a Grade A tertiary public hospital in Shanghai.

(3) Inclusion criteria: ① Clinical in-service nurses who have obtained nurse practitioner qualification certificates; ② Working years ≥ 1 year; ③ No cognitive impairment; ④ Informed consent and voluntary participation in this researcher.

(4) Exclusion criteria: ① Nurses who are not employed by the hospital where the survey was conducted, including non-staff nurses studying in the hospital, etc. ② Clinical nurses who are not in Shanghai due to study abroad, sick leave or maternity leave.

Sampling

The sample is representative of the research object. The reason for sampling in the study is that it is not feasible to study all the subjects due to the limited conditions. The purpose of sampling is to generalize the findings. The object of this study is the on-the-job registered nurses in Shanghai public hospitals. The sample data is huge, and there are many public hospitals in Shanghai, which are widely distributed, and it is impossible to study all hospitals. At the same time, according to the research concept of positivism, in order to make the research results more general, it is not necessary to study all objects. For the above reasons, this study selected on-the-job registered nurses from Z Hospital, a Grade A tertiary public hospital in Shanghai, as samples. The sample size in the quantitative investigation stage is calculated according to the sample size required for the structural equation model. At present, there is no clear formula for the samples required for the analysis of the structural equation model. Wu pointed out in the book "Structural Equation Model--Operation and Application of AMOS" that the sample size required for structural equation model analysis is preferably more than 200, so the sample size selected for this study is more than 300 cases. The sample size in the qualitative research stage is calculated on the principle of data saturation, and after saturation, 3-4 cases of interviews are added, and about 15 cases are estimated.

Data Analysis and Results

Overall situation of nurse incentive

The nurse incentive questionnaire (see Appendix) has 32 items, with 1-5 grade score. The higher the score, the higher the perceived motivation level of nurses. In this study, the total score of nurse's incentives is 3.88 ± 0.57 , which is at the middle level, among which the score of interpersonal relationship dimension is the highest, which is 4.18 ± 0.62 , and the score of basic livelihood security dimension is the lowest, which is only 3.50 ± 0.82 .

Table 1 Nurses incentive score ($\bar{x} \pm s$, points)

Projects	Items	Score
Basic Livelihood Security	11	3.50 ± 0.82
Career Development Prospects	11	3.87 ± 0.62
Interpersonal Relationships	5	4.18 ± 0.62
Organizational Support	5	3.98 ± 0.59
Overall Nurse Motivation	32	3.88 ± 0.57

The overall situation of perceived professional benefit of nurses

The perceived professional benefit of nurses (see appendix for details) has 29 items with a score of 1-5, where a mean score of less than 3 is a low level, 3-4 is a medium level, and greater than 4 is a high level. As shown in Table 2, the average score of perceived professional benefit scale is 4.10 ± 0.63 points, and according to the standard of 1 - 5 points in the total scale, the perceived professional benefit of nurses is in the upper middle level. Among all the dimensions, the score of team belonging is the highest (4.19 ± 0.69), and the score of recognition from family and friend is the lowest (3.99 ± 0.75).

Table 2 Score of perceived professional benefit of nurses ($\bar{x} \pm s$, points)

Projects	Items	Score
Good patient-nurse relationship	6	4.15 ± 0.77
Positive occupational perception	5	4.04 ± 0.69
Friends and family approval	6	3.99 ± 0.75
Team Belonging	6	4.19 ± 0.69
Self-growth	6	4.13 ± 0.73
Overall Perceived professional benefit	29	4.10 ± 0.63

The overall situation of occupational commitment of nurses

The occupational commitment of nurses (see appendix for details) has 24 items with a score of 1-5, where an average score of less than 3 is a low level, 3-4 is a medium level, and greater than 4 is a high level. As shown in Table 3, the overall average score of occupational commitment of nurses is (3.47 ± 0.59), which is at the medium level. The average score of each dimension in descending order is affective commitment, normative commitment, economic cost commitment, emotional cost commitment, and opportunity commitment.

Table 3 Score of occupational commitment of nurses ($\bar{x} \pm s$, points)

Projects	Items	Score
Affective Commitment	6	3.75 \pm 0.75
Normative Commitment	5	3.59 \pm 0.83
Economic Cost Commitment	4	3.63 \pm 0.78
Emotional Cost Commitment	5	3.32 \pm 0.87
Opportunity Commitment	4	2.88 \pm 0.58
Overall Professional Commitment	24	3.47 \pm 0.59

Findings

One-way analysis of variance

This study used occupational commitment as the outcome variable, and explored the relationship between work intention represented by occupational commitment and demographic characteristics, job characteristics, incentive level, and perceived professional benefit by one-way ANOVA and correlation analysis.

Table 4 One-way analysis of variance of nurses' work intention (demographic characteristics)

Variables	Initial assignment	Frequency	Occupational Commitment Score	F-value	P-value
Gender	"Male" = 1	10	3.42 \pm 0.63	0.098	0.755
	"Female" = 2	345	3.42 \pm 0.58		
Age	"< 30 years old" = 1	190	3.38 \pm 0.56	5.851	0.003
	"31 to 39 years old" = 2	121	3.56 \pm 0.63		
	">40 years old" = 3	44	3.64 \pm 0.52		
	"Technical secondary school and below" = 1	5	3.51 \pm 0.25		
Highest Education	"Junior college" = 2	76	3.39 \pm 0.64	0.749	0.524
	"Bachelor" = 3	269	3.50 \pm 0.58		
	"Master" = 4	5	3.47 \pm 0.59		
	"Chinese Communist Party member" = 1	33	3.66 \pm 0.43		
Political adherence	"Communist Youth League Member" = 2	116	3.31 \pm 0.49	5.372	0.001
	"Mass" = 3	201	3.54 \pm 0.64		
	"Other" = 4	5	3.30 \pm 0.70		
	"Single" = 1	159	3.34 \pm 0.57		
Marital Status	"Married" = 2	190	3.59 \pm 0.58	8.966	<0.001
	"Other" = 3	6	3.28 \pm 0.58		
Registered permanent residence	"Shanghai" = 1	278	3.49 \pm 0.60	1.263	0.262
	"Other" = 2	77	3.41 \pm 0.56		
Household registration type	"Urban" = 1	295	3.49 \pm 0.62	0.827	0.364
	"Rural" = 2	60	3.41 \pm 0.41		
	"<\$5000" = 1	23	3.28 \pm 0.51		
Personal monthly income	"5,000-10,000 yuan" = 2	92	3.45 \pm 0.59	1.184	0.318
	"10,001 - 15,000 yuan" = 3	209	3.51 \pm 0.62		
	"\$15001-20,000" = 4	28	3.52 \pm 0.43		
	"> \$20,000" = 5	3	3.10 \pm 0.20		

(1) The relationship between demographic characteristics and work intention

The results show significant differences in the total scores of occupational commitments among nurses of different ages, political adherence, and marital statuses (see Table 4). The occupational commitment scores of nurses increased with age; the occupational commitment scores of CPC members are significantly higher compared to the masses; and the level of occupational commitment of married nurses is significantly higher compared to single, divorced, and widowed marital status. It can be seen that the work intention of elderly nurses, CPC members, and married nurses increased significantly.

(2) The relationship between work characteristics and work intention

In the characteristics of work attributes, there are significant differences in the total scores of occupational commitments of nurses in different departments, different professional titles, different job titles, different forms of employment, different working years, and night shifts (see Table 5 for details).

Table 5 One-way analysis of variance of nurses' work intention (work attribute characteristics)

Variables	Initial assignment	Frequency	Occupational Commitment Score	F-value	P-value
Department+	"Internal medicine" = 1	107	3.37±0.60	2.939	0.033
	"Surgery" = 2	143	3.58±0.59		
	"ICU" = 3	102	3.43±0.55		
	"Other" = 4	3	3.57±0.65		
Professional and technical titles	"Junior nurse" = 1	62	3.26±0.49	11.948	<0.001
	"Senior nurse" = 2	189	3.43±0.61		
	"Chief nurse and above" = 3	104	3.68±0.53		
	"General Nurse" = 1	314	3.44±0.59	6.152	0.002
Job Title	"Education, research, specialist nurses" = 2	20	3.76±0.46		
	"Nurse manager and assistant" = 3	21	3.79±0.45		
	"Staff" = 1	62	3.68±0.54	9.011	0.003
Form of employment	"Non-staff" = 2	293	3.43±0.59		
	"1-5" = 1	112	3.31±0.52	5.554	<0.001
Years of work/year	"6-10" = 2	111	3.43±0.63		
	"11-15" = 3	52	3.59±0.56		
	"16-20" = 4	51	3.63±0.58		
	">20" = 5	29	3.75±0.51	3.370	0.035
Number of night shifts	"0 times/week" = 1	35	3.71±0.42		
	"1-2 times/week" = 2	269	3.44±0.59		
	"3-4 times/week" = 3	50	3.48±0.63		

The results show that the occupational commitment of surgical nurses is higher than that of internal medicine nurses, ICU nurses, and other departments, which might be related to the organizational culture of different departments. There are statistically significant differences in the occupational commitment scores of nurses with different employment forms. With the reform of personnel system, the number of non-staff nurses is increasing and becoming the main force of the nursing team. In this study, 82.53% of nurses are non-staff nurses. The study shows that non-staff nurses scored lower than staff nurses on the dimension of economic cost commitment. In clinical work, contract nurses and staff nurses undertake the same work, but there are differences in salary, bonus, welfare treatment, promotion, and so on, so their economic cost commitment is lower than that of formal staff nurses. There are statistically significant differences in the scores of occupational commitments of nurses with different professional titles, among which, nurses scored the lowest, significantly lower than senior nurses and chief nurses, and the differences are statistically significant. Nurses with the position of head nurse scored significantly higher on occupational commitment than nurses

with other positions, such as general nurses, teaching nurses and specialist nurses. The analysis results also show that nurses with different night shifts had statistically significant differences in the mean score of total occupational commitment scale, and nurses with 3–4 night shifts/week had the lowest level of occupational commitment. It can be seen that surgical nurses, staff nurses, nurses with middle and senior professional titles, head nurses, and nurses with fewer night shifts have higher work intentions.

(3) The relationship between motivation, perceived professional benefit and work intention
Correlation analysis results (Table 6) show that both incentive score and perceived professional benefit score are significantly and highly positively correlated with work commitment, suggesting that the higher the incentive level and the stronger the perceived professional benefit, the stronger the work intention.

Table 6 Correlation analysis of work intention, motivation and perceived professional benefit

	Work intention	Motivation	Perceived professional benefit
Work intention	-	0.766**	0.687**
Motivation	0.766**	-	0.680**
Perceived professional benefit	0.687**	0.680**	-

Note: ** P<0.01

Multivariate analysis

The variables with statistical significance in univariate analysis are used as independent variables, including age, political adherence, marital status, department, professional title, job title, employment form, working years and night shifts, work incentive, and perceived work benefit; Multiple linear regression is performed with work intention as the dependent variable, and the model Durbin-Watson value is 2.12, which is close to 2. The variance inflation factor is small, and there is no collinearity issue, which means that it is suitable for multiple linear regression analysis. The F value is 44.500, which is statistically significant, indicating that at least one independent variable was significant and the model can be considered to be valid. Multiple linear regression results (Table 7) show that work incentive, perceived career benefit, and job title are independent influencing factors of work intention ($P < 0.05$), which could explain 64.7% of the variation in work intention.

Table 7 Results of multivariate linear analysis of nurses' work intention

	B	β	Standard Error	t-value	P-value
Constant term	0.121		0.223	0.543	0.587
Motivation	0.584	0.563	0.048	12.104	<0.001
Perceived professional benefit	0.290	0.310	0.042	6.968	<0.001
Head nurse position ^①	-0.184	-0.100	0.091	-2.011	0.045

Note: ① Compared with the nurse position

Analysis of the action path among the influencing factors of work intention

The results show that the values of the goodness of fit indicators for the hypothetical model are as follows: $X^2=1.1$, $df=1$, $X^2/df=1.1$, $GFI=0.999$, $NFI=0.999$, $RMSEA=0.012$, and the above indicators indicate good fit of the path model, and the final model diagram is shown in Figure 1, and the path coefficients shown in the figure are the standardized path coefficients. Standardized direct, indirect, and total effects between variables in the model are presented in Table 8. The standardized path coefficients between the observed variables in the path model

are presented in Table 9. The results show that intrinsic and extrinsic motivation has direct and significant effect on work intention of nurses, and it could also have indirect and significant effect through the mediating variable of perceived professional benefit.

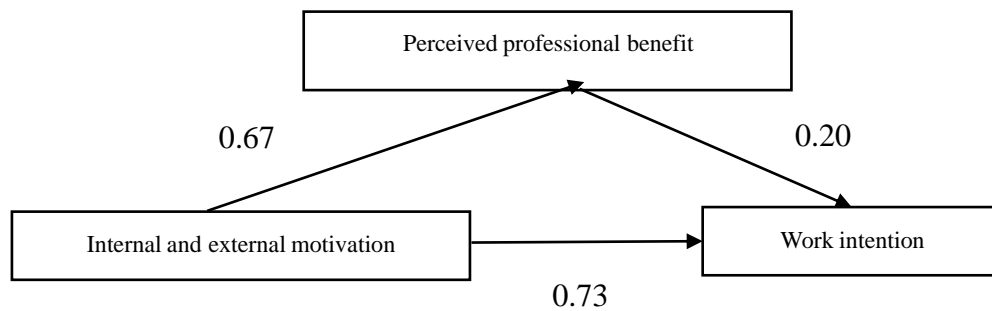


Figure 1 Final model diagram

Table 8 Standardized effects between variables in a model

	Motivation			Work intention		
	TE	DE	IE	TE	DE	IE
Perceived professional benefit	0.725**	0.725**	-	-	-	-
Work intention	0.815**	0.668**	0.147**	0.202**	0.202**	-

Note: IE: indirect effect; DE: direct effect; TE: total effect; **: P < 0.001

Table 9 Regression coefficients between variables in the path model

		Estimate s	S.E.	C.R.	P
Perceived professional benefit	← Motivation	0.756	0.047	15.928	P < 0.001
Work intention	← Motivation	0.651	0.058	11.296	P < 0.001
Work intention	← Perceived professional benefit	0.189	0.049	3.839	P < 0.001

Qualitative survey results

(1) General information of respondents

The respondents were 15 nurses from Z hospital. Among them, there were 3 males and 12 females, aged 23-44 years. See Table 10 for general information.

(2) The survey results

Through reading, arranging, and analyzing the interview materials, the effective incentive measures of combining internal incentives and external incentives are summarized. Among them, extrinsic motivation mainly includes increasing organizational support, flexible management style, reasonable increase in salary and wages, and improving night shift scheduling; intrinsic motivation mainly includes increasing attention and care, providing career development opportunities, balancing the relationship between work and family, and establishing good interpersonal relationships.

Table 10 General information of nurses surveyed

Number	Age (years)	Gender	Marital Status	Academic qualifications	Personal income (ten thousand yuan/month)	Years of work (years)	Professional title	Job title
N1	31	Female	Single	Undergraduate	1-1.5	6	Senior nurse	Nurse
N2	36	Female	Married	Undergraduate	1-1.5	13	Chief nurse	Specialist nurse
N3	47	Female	Married	Undergraduate	1-1.5	27	Chief nurse	Head Nurse
N4	28	Female	Single	Undergraduate	1-1.5	5	Senior nurse	Nurse
N5	31	Female	Married	Undergraduate	1-1.5	9	Senior nurse	Specialist nurse
N6	35	Female	Married	Undergraduate	0.5-1	15	Senior nurse	Nurse
N7	25	Female	Single	Undergraduate	1-1.5	5	Senior nurse	Nurse
N8	37	Female	Married	Undergraduate	1-1.5	15	Chief nurse	Nurse
N9	29	Male	Single	Undergraduate	1-1.5	7	Senior nurse	Nurse
N10	29	Female	Married	Master	0.5-1	3	Senior nurse	Nurse
N11	32	Male	Married	Undergraduate	0.5-1	5	Chief nurse	Nurse
N12	29	Male	Single	Undergraduate	1-1.5	5	Senior nurse	Nurse
N13	45	Female	Married	Undergraduate	0.5-1	26	Nurse Supervisor	Head Nurse
N14	25	Female	Single	Undergraduate	0.5-1	4	Nurse	Nurse
N15	38	Female	Married	Undergraduate	1-1.5	18	Chief nurse	Assistant Head Nurse

Conclusion

This study presents the level of work intention of nurses in public hospitals through descriptive analysis. the overall average score of occupational commitment of nurses is (3.47 ± 0.59) , which is at the medium level. The average score of each dimension in descending order is affective commitment (3.75 ± 0.75) , normative commitment (3.59 ± 0.83) , economic cost commitment (3.63 ± 0.78) , emotional cost commitment (3.32 ± 0.87) , and opportunity commitment (2.88 ± 0.58) . The results of this study are similar to those of Xun, Liu, and Wu (2012), suggesting that the attitude of nurses to maintain their current profession still needs to be further improved, and their professional identity needs to be further enhanced. Understand the key factors affecting nurses' work intention and to establish a model of the formation mechanism of nurses' work intention based on incentives. This study established the formation mechanism model of nurses' work intention by one-way analysis of variance, multiple linear analysis and structural equation model. Job motivation, perceived professional benefit and job title are independent influencing factors of work intention, intrinsic and extrinsic motivation has a direct and significant effect on nurses' work intention, and can also have an indirect and significant effect through perceived professional benefit as a mediating variable. Therefore, in this study, the effect of motivation on perceived professional benefit and work intention has been verified. This study summarizes 8 effective incentive measures from both internal and external incentives through qualitative interviews. Among them, the external incentive

measures mainly include increasing organizational support, flexible management mode, a reasonable increase in salary and treatment, and improvement of night shift scheduling; This is similar to the study results of Jiang, Ding, Wang & Xia (2011).

Implications

According to Maslow's theory of hierarchical needs, people should first solve the basic survival needs of food, clothing, shelter, and transportation. But getting promoted, and thus higher returns is something many people struggle with. As long as a hierarchy exists, people will have the motivation to pursue promotion. An important condition for promotion to generate incentives is that there are enough positions for people to see the prospect of "advancement". Nurses also need to set up different promotion sequences, such as technical sequence, management sequence, and market sequence. By separating the sequences, there are opportunities to develop in a specific professional sequence and room to work hard and reap the rewards. Secondly, in different sequences, enough levels are set, and each level up means achieving an increase in income and treatment, which is helpful to stimulate the motivation of nurses. The design of the promotion system also needs to pay attention to whether the promotion criteria are set properly to help ensure that the right people can be selected. In addition, for the failure in the process of promotion, whether the hospital has a proper arrangement and a good way out is also worth thinking about. Improve the intrinsic motivation of nurses. All human behavior is due to some kind of incentive, and the most fundamental factor behind incentive is motivation. Motivation is a state of mind that can be triggered by internal or external factors that keep people working towards their goals. Strong motivation can sustain a high level of effort, which can be very sustained. And once the motivation disappears, so does the effort. Different people may do the same thing, but their motivations may be different. What works very well as a motivator for some people may work minimally for others. So, incentives should vary from person to person. Managers should understand the motivation of each nurse and motivate them to work hard in the most suitable way. Although material incentives such as bonus, salary, stock and options are important, increasing the freshness of work and challenging higher goals will also generate strong incentives. Pay attention to the perceived professional benefit of nurses. In the vocational education of clinical nurses, it should be paid attention to the impact of the level of professional benefit on work intention. Nursing is harder than people think. Nurses have to face various problems such as psychological trauma, sharp tool injury, noise injury, ultraviolet injury, dust pollution, low salary and so on. However, for a long time, the social recognition of nursing profession is not high. The study by Li (2015) showed that nurses' perceived professional benefit was positively correlated with work enthusiasm, job satisfaction and professional identity. The more perceived professional benefit, the higher work enthusiasm and job satisfaction, and the higher professional identity. With the improvement of the demand for nursing talents, many posts now require nurses to receive master's and doctoral education, and the demand for leading nursing talents with both professional skills and scientific research ability cultivated by the dual-wheel drive is also urgent. Nurses with a higher level of perceived professional benefit will cherish their profession more and stick to the nursing profession. The managers should improve the perceived professional benefit of clinical nurses through various forms of education methods so that nurses can obtain a high level of professional security and professional value, and then enhance occupational commitment. Enhance the occupational commitment of nurses. The commitment is that in anything we do, we have the rewards of doing it and the pains of doing it. So, there's a real drive to do things that interest you. The word "commitment" is an important concept in management. When we feel it's worthwhile to put our lives on it no matter the outcome, that's where commitment comes from. Commitment is a relatively stable motivation and need, the root of the sustainability of behavior, with intrinsic persistence, and the highest

level of motivation (Ni et al., 2019). Occupational commitment refers to a psychological connection between a person and his or her occupation, i.e., the degree of reluctance to change occupation due to personal identification and emotional attachment to the occupation, commitment to the occupation, and internalization of social norms. It is a variable of an employee's attitude toward his or her occupation, a promise to bear certain professional responsibilities, and a "psychological contract" signed between the individual and his or her occupation. It is mainly the individual's attachment to the organization, such as the strong consistency between the individual and the organization's goals, the individual's devotion or loyalty to the organization or the occupation, and the occupation or the organization becoming the center of the individual's life, which reflects the psychological relationship between the organization members and the organization (Iglesias, Salgado, Moreno & Abal, 2021).

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