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Research Article

The Vertical Performance Management Model: An Analysis of Its Impact on Nursing Staff Satisfaction

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Abstract

Objective: This study aimed to investigate nurse satisfaction with the performance reform under the nursing department's vertical management model. Methods: A performance management model incorporating risk, workload, technical difficulty, and night shift factors was developed and implemented in a tertiary hospital. In November 2024, a hospital-wide survey was conducted at a tertiary hospital using a self-designed questionnaire. Out of 936 questionnaires distributed, 928 valid responses were collected, yielding a high effective response rate of 99.15%. Results: Satisfaction with the reform differed significantly across age, work experience, education, professional title, department type, department grade, and monthly income ($P < 0.05$). However, the overall satisfaction with the performance system showed significant differences primarily based on department type, department grade, and monthly income level ($P < 0.05$). Inpatient ward nurses reported higher satisfaction than non-inpatient ward nurses. Nurses in higher-risk departments (grades A and B) expressed greater satisfaction than those in lower-risk departments. Additionally, satisfaction levels rose significantly with higher monthly income. Conclusion: The performance reform under the nursing department vertical management model effectively accounts for job risk and workload. It serves as a positive mechanism to enhance nurse motivation, encourage night shift engagement, and strengthen the nursing department's managerial function. Further efforts should focus on improving communication and transparency to address gaps in understanding and satisfaction among certain nurse groups.

Keywords

Nursing Department, Vertical Management, Performance Reform, Satisfaction, Nursing Staff

1. Introduction

According to the National Performance Monitoring Operational Manual for Tertiary Public Hospitals (2025 Edition) issued by the National Health Commission [1], there is an ongoing emphasis on continuously improving the refinement of

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performance monitoring in tertiary public hospitals. Simultaneously, the Key Tasks for Deepening the Medical and Healthcare System Reform in Guangdong Province in 2024 [2] explicitly requires deepening the salary system reform in public hospitals, improving internal performance appraisal and salary distribution mechanisms, with a focus onclinically frontline staff, key positions, and core technical personnel. Studies confirm that structured performance appraisal positively influences nurses' job satisfaction and performance [3], and perceived organizational justice is key to their satisfaction with performance-based pay [4]. The implementation rules of the national tertiary hospital accreditation standards (2020 edition) require the establishment of a performance appraisal system for nursing staff based on workload, quality, patient satisfaction, combined with nursing difficulty and technical requirements, focusing on assessing actual working ability. The appraisal results should be linked to nursing staff's evaluation for excellence, promotion, and salary distribution to motivate them. The 2025 edition of the Tertiary Hospital Accreditation Standards further clarifies the macro direction of "deepening quality, connotation, and efficiency-driven development." Studies have shown this model can effectively enhance nurses' job satisfaction and reduce turnover rates [5]. Our hospital initiated the nursing performance reform under the vertical management model in 2019, aiming to allocate performance incentives towards departments with heavier clinical tasks, higher risks, and greater technical content. Since its implementation, the reform plan has achieved a smooth transition and performance assessment. To understand the satisfaction level after the reform and address existing issues for further improvement, a self-designed nursing performance satisfaction questionnaire was administered in November 2024 to investigate nurses' satisfaction, providing a basis for improving the performance evaluation system in public hospitals.

2. Objects and Methods

2.1. Objects

All nurses from a tertiary hospital were surveyed. A total of 936 questionnaires were filled out, with 928 valid responses recovered, resulting in an effective response rate of 99.15%. The basic characteristics of the respondents are detailed in Table 1.

Table 1. *General Information of the Survey Participants.*

Basic Information	Category	Frequency (n)
Gender	Male	50
	Female	878
Age (years)	<25	202
	≥25 and ≤30	289
	>30 and ≤35	173
	>35 and ≤40	115
	>40 and ≤45	65
	>45	84
Work Experience (years)	<1	35
	1-3	229
	4-5	125
	6-10	204
	11-15	137
	16-20	73
	>21	125
Education Level	Technical secondary school or below	3
	College (3-year)	266
	Bachelor's degree	644
	Master's degree or above	15

Basic Information	Category	Frequency (n)
Professional Title	No title	54
	Junior	533
	Intermediate	310
	Associate senior	27
	Senior	4
Department Type	Inpatient Ward	384
	Non-inpatient Ward	544
Department Grade	A	93
	B	320
	C	155
	D	151
	E	157
	F	52
Monthly Income (RMB)	<5000	135
	≥5000 and ≤6000	230
	>6000 and ≤7000	198
	>7000 and ≤8000	144
	>8000 and ≤9000	105
	>9000 and ≤10000	66
	>10000	50

Note: Department grades (A-F) are assigned based on risk assessment, with A representing the highest risk level.

2.2. Methods

2.2.1. Nursing Vertical Performance Management Model

The nursing department vertical performance management was implemented. Utilizing data on risk coefficient, workload, and revenue, departmental risk levels and coefficients were determined based on internal/external risk assessments, Case Mix Index (CMI), average nursing hours, etc. Departments were categorized into Inpatient Wards (graded A-F, A being highest risk) and Non-inpatient Wards (graded A-E, A being highest risk). Departmental performance was calculated by combining workload indicators and controllable cost savings, thereby constructing a nursing vertical performance management model that reflects dimensions such as risk, workload, technical difficulty, and night shift positions [6].

2.2.2. Satisfaction Questionnaire

A self-designed satisfaction questionnaire was used, consisting of two parts with a total of 24 items: Nurse Basic Information (8 items including gender, age, work experience, education, title, department type, department grade, monthly income) and Nurse Satisfaction Survey (16 items). The satisfaction survey included items on satisfaction with departmental performance distribution and with the hospital's overall policy reform. Each item employed a 5-point Likert scale. Items 9 (understanding of departmental performance distribution plan) and 15 (understanding of hospital's overall performance plan) had options: "Very unaware, " "Somewhat unaware, " "Basically aware, " "Somewhat aware, " "Very aware." Item 16 (willingness to continue working in this hospital until retirement) had options: "Strongly disagree, " "Somewhat disagree, " "Basically agree, " "Somewhat agree, " "Strongly agree." Items 1-8 and 10-14 had options: "Very dissatisfied, " "Somewhat dissatisfied, " "Neutral/Basically satisfied, " "Somewhat satisfied, " "Very satisfied."The satisfaction questionnaire was developed based on literature review and reform objectives. Its content validity was established through expert consultation. The internal consistency (Cronbach‘s alpha) was 0.89 for the total scale, and 0.85 and 0.82 for the departmental and hospital-wide subscales, respectively.

2.2.3. Statistical Methods

Data were analyzed using SPSS 24.0. Measurement data were expressed as mean±standard deviation ($\bar{x}$±s) and analyzed using one-way ANOVA. Count data were expressed as percentages and analyzed using the chi-square test. A P value < 0.05 was considered statistically significant. The total satisfaction score (sum of 16 items) was treated as a continuous variable for one-way ANOVA. Minimal random missing data (<1%) was handled by casewise deletion. ANOVA assumptions were met: normality was confirmed via Q-Q plots/K-S test, and homogeneity of variance via Levene's test (all p > 0.05). Bonferroni correction was used for post-hoc comparisons.

3. Results

3.1. Survey Results on Nurses' Satisfaction with the Nursing Vertical Performance Management Model

The results are detailed in Table 2.

Table 2. Survey Results of Nurses' Satisfaction with the Vertical Performance Management.

Item	Score ($\bar{x}$ ± s)
1. Satisfaction with your current performance level	3.02 ± 0.99
2. The current performance distribution in your department considers workload, reflecting "more work, more pay"	3.50 ± 1.00
3. Performance distribution in your department reflects individual technical skill level	3.52 ± 0.97
4. Performance distribution in your department reflects individual work quality and effectiveness	3.56 ± 0.96
5. The current performance distribution in your department reflects differences among different job levels	3.59 ± 0.94
6. Performance distribution in your department incentivizes research and practical achievements (e.g., publications, patents, quality improvement projects)	3.72 ± 0.90
7. The current performance distribution in your department benefits personal career development	3.56 ± 0.96
8. The current performance distribution in your department is objective, fair, and transparent	3.73 ± 1.00
9. Your understanding of the current performance distribution method in your department	3.81 ± 1.00
10. The new hospital-wide nursing vertical performance management model promotes the practical application of nursing knowledge and skills.	3.49 ± 0.98
11. Nurse staffing in the hospital matches the workload of the wards.	3.49 ± 0.97
12. The new hospital-wide nursing vertical performance distribution model motivates you to fulfill nursing duties and provide quality patient care.	3.52 ± 0.96
13. The new hospital-wide nursing vertical performance distribution model motivates your work enthusiasm.	3.47 ± 1.02
14. The new hospital-wide nursing vertical performance management model promotes the enhancement of nurses' self-worth.	3.48 ± 0.99
15. Your understanding of the hospital's overall nursing performance and salary model.	3.23 ± 1.04
16. You are willing to continue working in nursing at this hospital until retirement.	3.84 ± 1.02

3.2. Analysis of Differences in Overall Nursing Performance Satisfaction by Individual Characteristics

The The overall nursing performance satisfaction score was calculated as the sum of the 16 items in the satisfaction scale. As shown in Table 3, one-way ANOVA revealed that the overall satisfaction score did not differ significantly by gender, age, work experience, education level, or professional title (all P > 0.05). However, statistically significant differences were found across department type, department grade, and monthly income level (all P < 0.05).

Post-hoc pairwise comparisons with Bonferroni correction highlighted the most critical disparities. Satisfaction was significantly higher among inpatient ward nurses compared to those in non-inpatient wards. Regarding department grade, nurses in the highest-risk grades (A and B) reported significantly greater satisfaction than those in the lower-risk grade C

(all $P < 0.05$). The most pronounced differences were observed by monthly income. Nurses in the highest income group (>10, 000 RMB) were significantly more satisfied than all other income groups. Conversely, the two lowest income groups (<5, 000 RMB and 5, 000-6, 000 RMB) demonstrated significantly lower satisfaction scores compared to all groups earning above 6, 000 RMB.

Table 3. Comparison of Overall Satisfaction Scores by Key Demographic and Work Characteristic.

Variable	Category	Score ($\bar{x}\pm s$)	Statistical Test	*P* value	Significant Pairwise Comparisons (Post-hoc)
Department Type	Inpatient Ward	58.08 ± 12.73	t = 4.045	0.045	A
	Non-inpatient Ward	56.34 ± 13.24			B
Department Grade	A	58.76 ± 11.70	F = 2.74	0.018	A, B
	B	58.79 ± 12.80			A, B
	C	55.70 ± 13.54			C
	D	55.91 ± 11.48			C
	E	55.83 ± 14.80			C
	F	54.44 ± 12.97			C
Monthly Income (RMB)	< 5000	51.46 ± 12.77	F = 13.516	< 0.001	D
	5000 – 6000	53.97 ± 13.30			D
	6000 – 7000	58.28 ± 13.11			E
	7000 – 8000	59.53 ± 11.95			E
	8000 – 9000	58.68 ± 12.72			E
	9000 – 10000	60.98 ± 10.22			E
	> 10000	65.88 ± 10.01			F

Notes:
1. Pairwise Comparisons: Categories sharing the same superscript letter (A, B, etc.) are not significantly different from each other (P > 0.05, Bonferroni corrected). Categories with different letters are significantly different.
Example for Income: Group D (<5000 & 5000-6000) differs from groups E (6000-10000) and F (>10000), but groups within E do not differ among themselves.
2. This summary is based on detailed post-hoc tests (Bonferroni) presented in the original analysis level.

4. Discussion

4.1. Overall Satisfaction

Guided by the National Performance Monitoring Operational Manual for Tertiary Public Hospitals (2025 Edition) [1], this study systematically evaluated the nursing vertical performance management model. The results indicate that this model has positive significance in enhancing nurses' work motivation and professional identity. The overall satisfaction level was medium to high, with particularly outstanding performance in the "willingness to continue working until retirement, " reflecting the reform's role in promoting career stability among nurses. This aligns with the current policy direction in China, both nationally and in Guangdong Province, regarding deepening healthcare reform and enhancing the public welfare nature of medical services. Recent research also points out that given the currently limited coverage of nursing vertical management in China, establishing a management performance evaluation system that highlights the value of nursing is particularly important and represents a recommended direction for reforming nursing human resource management in public hospitals under current circumstances [7]. However, satisfaction with individual performance levels remains the lowest-scoring item, suggesting a gap still exists between individual perception and system design. This indicates a need to further optimize distribution details and communication mechanisms in accordance with relevant policy requirements. It is important to note that the cross-sectional nature of our survey captures perceptions at a single point in time; therefore, while the positive correlation between the reform and career

stability intention is encouraging, it cannot establish a causal relationship.

4.2. Factors Influencing Nursing Performance Satisfaction

Differences in physician-nurse performance, horizontal comparisons between departments, and insufficient understanding of the overall performance scheme are the three main factors affecting satisfaction. Research shows that the RBRVS model is widely used in physician performance management [8]. Under this model, physicians can target their efforts based on performance incentives. In contrast, nursing performance focuses more on risk and work difficulty, leading to income gaps between physicians and nurses in certain specialized departments, such as ophthalmology and stomatology, where the physician team's performance is relatively high while the nursing team's performance is lower due to relatively lower risk and difficulty, thereby affecting nurse satisfaction. Furthermore, horizontal comparisons among nurses with the same title but in different departments can lead to dissatisfaction among nurses in lower-performing departments, resulting in lower satisfaction. A fair and transparent performance distribution system is an important measure for deepening the salary system reform in public hospitals. Recent studies have also shown that salary satisfaction positively impacts job performance [9]. Although our hospital has conducted multiple rounds of scheme explanation, nursing staff's understanding of the overall framework remains insufficient, indicating a need to continue innovating communication methods, such as using visual interpretations and case sharing to enhance awareness. This finding aligns with broader research highlighting that staff's understanding of policies and performance metrics is a critical, yet often overlooked, factor influencing their acceptance and satisfaction [10]. Improving transparency and communication is thus not merely an administrative task but a core component of effective reform implementation [11].

4.3. Satisfaction with Performance Models at Hospital and Department Levels

The survey results indicate that nurses' satisfaction with departmental performance distribution is higher than that with the hospital's overall performance model. This is related to the democratic participation and transparency in the department's secondary distribution process. Firstly, nurses have a sufficiently intuitive understanding of the department's distribution method, which can reflect distribution based on workload, title, and other factors. Moreover, the department's secondary distribution plan requires repeated discussion within the department and must be approved by more than two-thirds of the nurses before implementation. Therefore, nurses' overall satisfaction with departmental performance distribution is relatively high. However, the complexity of the hospital's overall performance structure remains a barrier to understanding. Some nurses question the rationality of their department's risk grade, especially in departments subjectively perceived as having high work intensity but assigned a lower grade. Therefore, following the requirements of the Key Tasks for Deepening the Medical and Healthcare System Reform in Guangdong Province in 2024 [2], future efforts should strengthen the education on performance evaluation standards and the construction of feedback channels to enhance nurses' identification with the performance system.

4.4. Differences in Overall Satisfaction Under the Current Nursing Performance Management Model

This study shows that satisfaction among ward nurses is significantly higher than that among non-ward nurses. Non-ward positions include operating rooms, emergency areas, and various non-night-shift positions such as hemodialysis centers, endoscopy centers, and outpatient nursing units. Non-night-shift positions are defined as clinical departments without fixed patients and not requiring nurses to provide 24-hour continuous observation and care [12]. As nurses in non-night-shift positions do not need to work night shifts, they can better balance work and family [13]. Therefore, the overall preference within the nursing profession tends towards non-night-shift positions. The higher satisfaction among ward nurses reflects the initial effectiveness of the policy high-risk, high-workload positions. Furthermore, satisfaction is highest in department grade B and lowest in grade F, which may be related to the workload redistribution caused by the establishment of a new ICU department, indicating that the performance system can dynamically reflect changes in departmental risk and workload. Future work should, under policy guidance, continue to maintain the policy direction while paying further attention to the value recognition of non-ward positions to avoid a decline in the attractiveness of these positions due to excessive performance gaps.

4.5. Limitations of the Study

This study has several limitations. First, as a cross-sectional survey conducted in a single tertiary hospital, the findings may not be fully generalizable to other healthcare settings with different management structures or resource levels. Second, the data rely on self-reported satisfaction, which may be subject to social desirability bias. Third, while the results indicate associations between the vertical performance reform and nurse satisfaction, the design cannot confirm causal effects. Future research would benefit from a longitudinal or multi-center design to validate these findings and explore the long-term impact of such reforms on nurse retention and clinical outcomes [14].

5. Conclusions

Based on the latest national and provincial healthcare reform

policy directions, this study provides an in-depth analysis of the nursing vertical performance management model. The performance reform under the nursing department vertical management model is an important measure for optimizing the allocation of nursing human resources. Our findings suggest potential positive effects in enhancing nurses' motivation and guiding personnel flow towards key positions, as evidenced by the high willingness to continue working and the differentiated satisfaction across risk-based departments [15]. However, issues such as nurses' insufficient understanding of the overall performance framework and low satisfaction in certain positions still need attention. Following national and provincial policy requirements, future efforts should further improve performance communication mechanisms, enhance policy transparency and nurse participation. Simultaneously, in line with the latest national and local salary policy directions, the value-oriented performance distribution system should be continuously optimized to promote the rational flow and career development of nursing human resources.

Abbreviations

ANOVA	Analysis of Variance
CMI	Case Mix Index
ICU	Intensive Care Unit
P4P	Pay-for-Performance
RBRVS	Resource-Based Relative Value Scale
RMB	Renminbi (Chinese Yuan)
SD	Standard Deviation

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Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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