Journal of Clinical and Nursing Research, 2026, Volume 10, Issue 5
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

Study on the Effect of Lean Management in Optimizing Nursing Staff Allocation from the Perspective of Cultivating General Practice Nurses

Qiang Lin

Beijing Jiangong Hospital, Beijing 100054, China

Abstract: This study aims to explore the implementation effect of using lean management theory to optimize nursing staff allocation based on the perspective of general practice nurses, so as to provide empirical evidence for the refined management of nursing human resources in primary and comprehensive medical institutions. Nursing staff and inpatients in the Department of General Practice and related linked departments of a general hospital were selected as research subjects. The traditional nursing staff allocation model was adopted before the intervention, while after the intervention, the service concept of general practice nurses was integrated and lean management optimization strategies were implemented, including value stream sorting, hierarchical staffing, flexible scheduling, process reengineering and continuous improvement. Differences in nursing staff utilization efficiency, nursing quality indicators, nurses' job burnout level, and patient and nurse satisfaction before and after the intervention were compared. Results After the intervention, the balance of nursing staff allocation and per capita effective nursing working hours were significantly improved, and the proportion of non-value-added working time decreased; the incidence of adverse nursing events decreased, and the qualified rate of basic nursing and implementation rate of specialized nursing increased; nurses' job burnout scores decreased, and both nurses' job satisfaction and patient nursing satisfaction were significantly higher than those before the intervention ($p < 0.05$). Lean management from the perspective of general practice nurses can accurately match nursing service needs with human resource supply, reduce resource waste, improve nursing efficiency and quality, and improve nurses' practice experience and patients' medical experience. It is a scientific and feasible model for optimizing nursing staff allocation.

Keywords: General practice nurse; Lean management; Nursing staff allocation; Nursing quality; Job burnout; Satisfaction

Online publication: May 31, 2026

1. Introduction

With the transformation of China's medical and health service system toward "health-centered", primary

medical institutions and general practice departments undertake diversified service tasks such as diagnosis and treatment of common diseases, chronic disease management, rehabilitation nursing and health education, which put forward higher requirements for the comprehensive service ability of nursing staff. General practice nurses have a full-cycle, all-round and full-population nursing service perspective, which can comprehensively evaluate patients' physical, psychological and social needs and adapt to continuous and comprehensive nursing service scenarios. At present, nursing staff allocation is generally faced with problems such as structural imbalance, uneven workload, redundant processes and manpower waste. The traditional empirical allocation model is difficult to match the dynamic needs of general practice nursing services, easily leading to uneven nurse workload, high incidence of job burnout and fluctuating nursing quality [1].

Lean management originates from the lean production concept, whose core is to identify and eliminate non-value-added activities, optimize processes, improve resource utilization efficiency and achieve continuous improvement, and has been widely used in the medical and nursing field. Combining the comprehensive service perspective of general practice nurses with lean management, taking patient needs as the orientation, process optimization as the starting point and accurate staffing as the goal, can effectively solve the problem of mismatch between supply and demand of nursing staff. Based on the characteristics of general practice nursing services, this study implements lean management-oriented optimization of nursing staff allocation, evaluates its implementation effect, and provides practical reference for the reform of nursing human resource management [2].

2. Methods

2.1. Before intervention

The traditional nursing staff allocation model was adopted, mainly including fixed shifts, fixed posts and empirical scheduling. Manpower was roughly allocated according to the number of beds, without hierarchical and flexible deployment combined with the needs of general practice nursing services. Processes were not systematically optimized, and non-professional nursing work occupied a lot of time.

2.2. After intervention

Guided by the perspective of general practice nurses, lean management was implemented to optimize nursing staff allocation, with specific measures as follows:

2.3. Establishment of lean management and general practice nursing optimization team

The team was composed of the director of nursing department, department head nurses, key general practice nurses and quality control nurses, with clear division of labor. The whole process of general practice nursing services was sorted out, waste links in staffing and process operation were identified, and optimization plans were formulated and supervised [3].

2.4. Value stream analysis from general practice perspective

Taking the whole process of general practice patients including admission assessment, basic nursing, specialized nursing, chronic disease management, health guidance and discharge follow-up as the object, a value stream map was drawn to distinguish value-added activities (direct nursing, condition observation, health education) and non-value-added activities (repeated documentation, item searching, invalid handover,

cross-department waiting). Time consumption and manpower consumption of each link were counted to determine the optimization priorities.

2.5. Hierarchical and classified nursing staff allocation

Nursing staff were stratified according to the ability, working years and qualifications of general practice nurses: Level N0 (new nurses) were responsible for basic nursing and daily care; Level N1 (primary nurses) for routine nursing and condition monitoring; Level N2 (key nurses) for specialized nursing, chronic disease management and health guidance; Level N3 and above (supervisor nurses) for nursing of difficult cases, quality control and team guidance. According to the patient's condition classification and nursing demand intensity, "nurse-patient matching and ability-level correspondence" was implemented to avoid manpower waste and ability mismatch [4].

2.6. Flexible dynamic scheduling

Combined with the flow fluctuation rules of general practice outpatient, ward and community services, APN flexible scheduling, peak staffing increase and cross-regional mobile deployment modes were implemented. A general practice nursing manpower pool was established to cope with manpower demands such as outpatient peaks, home visits and sudden public health events, so as to achieve "no shortage of manpower at peaks and no waste at troughs" and reduce overtime and manpower idleness.

2.7. Process reengineering to eliminate waste

Nursing documentation was simplified with electronic and templated writing; fixed management of items and drugs was optimized to reduce nurses' searching time; handover process was integrated with "bedside handover and one-time verification" to reduce handover time; non-professional work (material transportation, environmental cleaning) was assigned to auxiliary staff to free up nurses' effective nursing time.

2.8. Continuous improvement and quality feedback

A mechanism of daily inspection, weekly summary and monthly analysis was established to collect feedback from nurses and patients, regularly evaluate the effect of staffing, dynamically adjust the plan for weak links, and form a closed-loop management of "Plan-Do-Check-Act" [5].

3. Observation indicators

3.1. Nursing manpower efficiency indicators

Per capita effective nursing working hours, proportion of non-value-added working time, balance of staffing, overtime hours.

3.2. Nursing quality indicators

Qualified rate of basic nursing, implementation rate of specialized nursing, incidence of adverse nursing events (falls, pressure ulcers, infusion extravasation, etc.).

3.3. Nurses' occupational indicators

The Maslach Burnout Inventory (MBI) was used to evaluate scores of emotional exhaustion,

depersonalization and personal accomplishment; Nurses' Job Satisfaction Scale was used to evaluate satisfaction.

3.4. Patient satisfaction indicators

A self-designed nursing satisfaction questionnaire was used to evaluate from the dimensions of service attitude, nursing skills, communication and guidance, and process convenience, with a total score of 100. A score ≥ 90 was defined as satisfaction.

3.5. Statistical methods

SPSS 22.0 statistical software was used for data analysis. Measurement data were expressed as ($\overline{x} \pm s$), and *t*-test was used for comparison between groups; enumeration data were expressed as [n(%)], and χ^2 test was used for comparison between groups. $p < 0.05$ indicated statistically significant difference.

4. Results

4.1. Comparison of nursing manpower efficiency indicators

After the intervention, per capita effective nursing working hours increased significantly, the proportion of non-value-added working time and per capita weekly overtime hours decreased significantly, and the balance of staffing was significantly improved, with statistically significant differences compared with those before the intervention ($p < 0.05$).

4.2. Comparison of nursing quality indicators

After the intervention, the qualified rate of basic nursing and implementation rate of specialized nursing increased significantly, and the incidence of adverse nursing events decreased significantly, with statistically significant differences compared with those before the intervention ($p < 0.05$).

4.3. Comparison of nurses' job burnout and job satisfaction

After the intervention, nurses' scores of emotional exhaustion and depersonalization decreased significantly, and scores of personal accomplishment and job satisfactions increased significantly, with statistically significant differences compared with those before the intervention ($p < 0.05$) [6].

4.4. Comparison of patient nursing satisfaction

Before the intervention, patient nursing satisfaction was (82.16 ± 6.35) points, with 249 satisfied cases and a satisfaction rate of 83.00%; after the intervention, patient nursing satisfaction was (94.28 ± 3.72) points, with 287 satisfied cases and a satisfaction rate of 95.67%. Both the satisfaction score and proportion after the intervention were significantly higher than those before the intervention, with statistically significant differences ($p < 0.05$).

5. Discussion

5.1. Integration of general practice nurse perspective and lean management meets the needs of nursing service transformation

General practice nursing emphasizes continuity, comprehensiveness and coordination, covering patients'

full-cycle health services, requiring nursing staff allocation to take into account multi-scenario needs such as outpatient, ward, community and chronic disease management. Lean management, with the core of eliminating waste, optimizing processes and accurate allocation, is highly consistent with the concept of general practice nurses of "patient-centered, resource coordination and efficient service". This study integrates the whole-process service perspective of general practice nurses into lean management, breaking through the empirical and fixed limitations of traditional staffing, realizing dynamic matching between nursing staff and service needs, and improving resource utilization efficiency [7].

5.2. Lean management for staff optimization can significantly improve nursing manpower efficiency

Through value stream analysis, non-value-added links such as repeated documentation, item searching and invalid handover are accurately identified. Process reengineering and flexible scheduling are implemented to effectively reduce nurses' non-professional working time and devote more time to direct nursing services. Hierarchical staffing achieves "ability-level correspondence and post matching", avoiding the waste of senior nurses' ability caused by undertaking basic work, while ensuring the standardized growth of junior nurses. The results of this study show that after the intervention, per capita effective nursing working hours increased, non-value-added time decreased and overtime reduced, confirming that lean management can release the potential of nursing staff and achieve "cost reduction and efficiency improvement" [8].

5.3. Staff optimization helps improve nursing quality and prevent adverse events

Scientific staffing is the basic guarantee of nursing quality. Flexible deployment and ability-level correspondence under lean management ensure standardized and continuous nursing services throughout the process, reducing operational omissions caused by insufficient manpower and overload. The perspective of general practice nurses strengthens condition assessment, health guidance and risk prediction. Combined with lean process optimization, the incidence of adverse events such as falls and pressure ulcers is effectively reduced, and the quality of basic nursing and specialized nursing is improved. The nursing quality indicators in this study were significantly improved, indicating that staffing optimization can be directly transformed into nursing safety and service quality improvement [9].

5.4. Lean management improves nurses' practice experience and reduces job burnout

Unbalanced traditional staffing easily leads to uneven nurse workload, frequent overtime and reduced job accomplishment, causing job burnout. In this study, flexible scheduling, burden reduction and efficiency improvement, and ability-level adaptation reduce nurses' work pressure, optimize work processes, and improve work autonomy and sense of value. After the intervention, nurses' emotional exhaustion decreased, personal accomplishment and satisfaction increased, indicating that lean management takes into account manpower efficiency and nurses' humanistic care, which is conducive to stabilizing the nursing team and improving practice well-being [10].

5.5. Staff optimization improves patient satisfaction and meets the goal of high-quality nursing

Lean management guided by the perspective of general practice nurses optimizes service processes around patient needs, improves the continuity and professionalism of nursing, reduces waiting time, strengthens

communication guidance and health management, and comprehensively improves medical experience. Patient satisfaction in this study was significantly improved, indicating that optimizing nursing staff allocation not only improves internal management efficiency, but also translates into high-quality services perceptible to patients, in line with the high-quality development of public hospitals and the requirements of high-quality nursing services [6].

5.6. Research limitations and prospects

This study is a single-center and phased study with a limited sample size and no long-term follow-up data included. The development level of general practice nursing in medical institutions of different regions and levels varies, so the promotion of research results needs to be combined with actual situations. In the future, multi-center, large-sample and long-term tracking studies can be carried out to further improve the lean management staffing system from the perspective of general practice nurses, and improve the allocation accuracy combined with information-based and intelligent tools, so as to provide more sufficient empirical support for the standardization and refinement of nursing human resource management.

6. Conclusion

Cultivating the perspective of general practice nurses and using lean management to optimize nursing staff allocation can effectively eliminate process waste, achieve accurate manpower matching, improve nursing efficiency and quality, reduce nurses' job burnout, and improve nurses' and patients' satisfaction. This model conforms to the characteristics of general practice nursing services and the requirements of high-quality medical development, with scientificity, feasibility and promotion value, and can provide practical reference for the reform of nursing staff allocation in medical institutions at all levels.

Disclosure statement

The author declares no conflict of interest.

References

[1] Tan L, Zhang J, Yu H, 2024, Using Lean Management Tools and Methods to Comprehensively Improve the Application Number of Appropriate Technologies of Traditional Chinese Medicine Nursing. Capital Food and Medicine, 31(17): 116–118.

[2] Wang F, Liu W, Li S, et al., 2025, Study on the Current Situation of Nursing Human Resources in Community Health Service Centers in Shanghai. Shanghai Nursing, 25(06): 1–5.

[3] Li J, Wang L, 2025, Current Situation and Optimization Countermeasures of Nursing Staff Allocation in General Practice Departments. Chinese Journal of General Practice, 23(02): 321–324.

[4] Wu D, Sun X, 2024, Study on the Effect of Lean Process Reengineering in Reducing Non-Value-Added Nursing Working Time. Chinese Nursing Management, 24(07): 1032–1036.

[5] Wu S, Xia J, Ning Y, et al., 2024, Analysis on the Current Situation and Influencing Factors of Nursing Clinical Support System in Tertiary Hospitals in Shenzhen. Chongqing Medicine, 53(13): 2033–2038.

[6] Fan J, Xu H, Qu Y, 2024, Analysis on the Current Situation and Influencing Factors of TCM Nursing Needs of

Inpatients in Public Tertiary Hospitals. Chongqing Medicine, 53(S01): 107–109.

[7] Wang F, Li Y, Du J, et al., 2024, Study on the Current Situation and Countermeasures of Needle Stick Injuries Among Hospital Nurses. Journal of Chengdu Medical College, 19(1): 19–23.

[8] Zhang Y, Shi X, Tong X, et al., 2025, Investigation on the Influence of Work Environment Perception on Job Burnout of 3300 Clinical Nurses in Western Anhui. Chinese Journal of General Practice, 23(05): 789–793.

[9] Ma F, Liu Y, Wang Y, 2025, Application of "8S" Management Model in Hospital Nursing Management. Health Advice, 2025(23): 10–12.

[10] Fan J, Xu H, Qu Y, 2024, Analysis on the Current Situation and Influencing Factors of TCM Nursing Needs of Inpatients in Public Tertiary Hospitals. Chongqing Medicine, 53(S01): 107–109.