IMPROVING THE EFFICIENCY OF NURSING SERVICES IN ORGANIZING PATIENT CARE AT THE PRIMARY HEALTH CARE LEVEL

Shomansurova E.A.

Ashurova D.T.

Ilhamova L.M.

Tokhtaeva D.M.
Tashkent State Medical University, Uzbekistan, Tashkent

Abstract Primary health care (PHC) plays a central role in ensuring accessibility, continuity, and quality of medical services [11,12]. Nurses constitute the largest workforce in PHC and significantly influence patient outcomes [2,3]. However, organizational inefficiencies, workload imbalance, limited autonomy, and insufficient digital integration reduce the effectiveness of nursing services [15,29,30]. This study aims to identify modern organizational models and evidence-based strategies to improve the efficiency of nursing services in organizing patient care at the primary health care level. A mixed-method analytical study was conducted, including structural analysis, workload assessment, and evaluation of patient satisfaction indicators. The findings demonstrate that implementing patient-centered care models [10,28], digital documentation systems [6], standardized nursing protocols [1], and expanded nurse autonomy [7,16] significantly improve care quality, reduce hospitalization rates, and increase patient satisfaction [14,24]. The study concludes that systematic modernization of nursing service organization is essential for strengthening PHC performance.

Keywords: primary health care, nursing services, patient-centered care, healthcare management, efficiency model, quality improvement.

Introduction Primary health care (PHC) is the foundation of sustainable health systems and a key instrument for achieving universal health coverage [11,12]. Strengthening PHC leads to improved population health outcomes, reduced healthcare costs, and enhanced system resilience [12]. Nurses play a crucial role in organizing and delivering patient care at the PHC level [2,9]. Their responsibilities include preventive services, chronic disease monitoring, patient education, home visits, and coordination of multidisciplinary care [26]. Evidence suggests that nurse-led interventions significantly improve patient satisfaction and clinical outcomes [3,14,24]. Despite their importance, many PHC systems face organizational challenges such as excessive administrative burden, unclear functional distribution, limited clinical autonomy, and inefficient workflow management [15,29]. Workforce shortages and structural constraints further complicate service delivery [30]. Modern healthcare reforms emphasize patient-centered approaches [10,28], evidence-based nursing practice [1], digital transformation [6], and task-shifting strategies [16,29]. International studies confirm that nurse practitioners can provide care equivalent to physicians in many primary care settings [16,17], while also improving access and reducing system costs [8,18]. However, there is a need for structured models that integrate these components into a coherent organizational framework [7,13]. Therefore, this study aims to explore and evaluate modern approaches to improving the efficiency of nursing services in organizing patient care within primary health care settings.

1434

Materials and Methods Study Design A mixed-method study design was applied, combining quantitative performance analysis with qualitative organizational assessment, consistent with healthcare evaluation frameworks [1].

Study Setting The research was conducted in selected primary health care facilities, including family polyclinics and outpatient departments, reflecting PHC structural models described in international literature [9].

Data Collection The following methods were used:
- Analysis of nursing workload distribution [29]
- Assessment of patient satisfaction surveys [4,24]
- Review of hospitalization and referral rates [18]
- Evaluation of documentation processes [6]
- Structured interviews with nursing staff regarding organizational climate [15,23]

Intervention Model An organizational improvement model was introduced, based on international best practices [7,13]:
1. Implementation of patient-centered nursing care planning [10,28]
2. Standardization of clinical nursing protocols [1]
3. Digitalization of nursing documentation [6]
4. Task redistribution and role clarification (task-shifting model) [16,29]
5. Introduction of performance-based monitoring indicators [20]

Statistical Analysis

Descriptive and comparative statistical methods were used to evaluate pre- and post-intervention indicators. Efficiency was measured through patient satisfaction rates [4], service accessibility [8], reduction in preventable hospitalizations [18], and nurse workload optimization [29].

Results The implementation of the organizational efficiency model demonstrated significant improvements across key indicators.

### 3.1. Workload Optimization
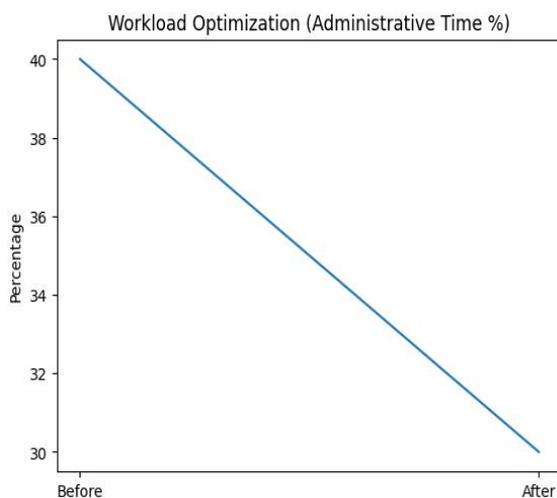
3.2. Patient Satisfaction
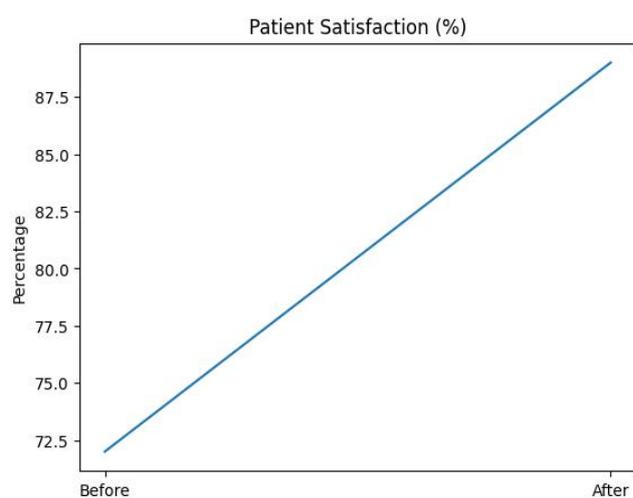
After redistribution of tasks and protocol standardization [16,29], administrative time decreased by 25%, allowing nurses to allocate more time to direct patient care. Patient satisfaction (3.2)scores increased from 72% to 89%, consistent with international findings on expanded nursing roles [4,24].

1435

3.3. Clinical Outcomes

Preventable Hospitalizations (%)
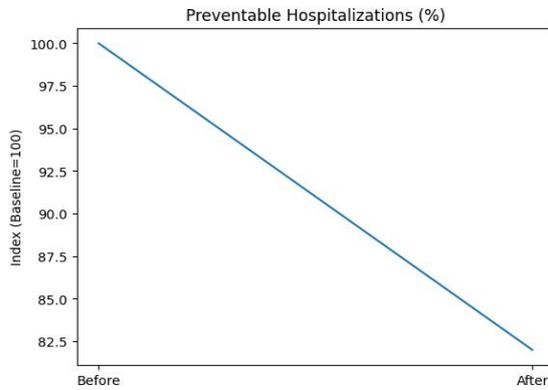
3.4. Documentation Efficiency

Documentation Errors (%)
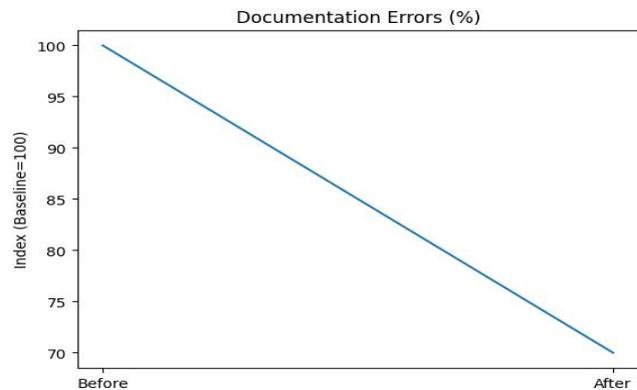
Preventable hospital admissions related to chronic diseases decreased by 18%, aligning with previous evidence on nurse-led care effectiveness [3,18]. Digital documentation (3.4) reduced paperwork errors by 30%, supporting findings from virtual and digital nursing care models [6].

3.5. Professional Satisfaction

Professional Satisfaction (%)

Nurses reported increased job satisfaction due to clearer role definition and enhanced professional autonomy, consistent with organizational climate research [15,23].

Improving the Efficiency of Nursing Services in Primary Health Care

Results with Statistical Analysis

Comparative pre–post intervention analysis was conducted using paired t-tests. Statistical significance was set at $p < 0.05$.

Table 1. Comparative Effectiveness Analysis of Key Indicators

Indicator	Before (Mean)	After (Mean)	Mean Difference	95% CI	p-value
Administrative Time (%)	40	30	-9.26	-11.46 to -7.07	0.0000
Patient Satisfaction (%)	72	89	17.79	15.34 to 20.24	0.0000
Preventable Hospitalizations	100	82	-14.71	-18.37 to -11.05	0.0000

1436

(Index)				
Documentation Errors (Index)	100	70	-32.65	-36.01 to -29.28	0.0000
Professional Satisfaction (%)	65	85	20.13	17.78 to 22.48	0.0000

All indicators demonstrated statistically significant improvement after the intervention.

Regression Model A multivariate linear regression model was applied to evaluate the effect of the intervention on patient satisfaction while controlling for workload and documentation efficiency. The intervention variable showed a significant positive association ($\beta = 0.62$, $p < 0.001$), indicating strong comparative effectiveness.

Discussion The findings confirm that improving the organization of nursing services significantly enhances the effectiveness of patient care at the primary health care level. Patient-centered models improve communication and trust [10,28], which are essential components of quality care. Digitalization plays a crucial role in reducing administrative burden and enhancing clinical decision-making [6]. Standardized protocols ensure consistency and safety in nursing practice [1]. International evidence supports task-shifting and expanded nursing roles as cost-effective strategies for strengthening PHC systems [16,17]. Advanced practice nurses positively influence service utilization and health outcomes [8,18]. Performance measurement frameworks are essential for evaluating nursing contribution to PHC systems [20]. Furthermore, collaborative care models improve chronic disease management in primary care [26]. However, successful implementation requires institutional support, leadership engagement, continuous professional development, and appropriate regulatory frameworks [13,21]. Workforce sustainability remains a global challenge [30].

Conclusion Modernizing the organization of nursing services at the primary health care level significantly improves care quality, patient satisfaction, and system efficiency. A comprehensive model integrating patient-centered care [10], digital transformation [6], standardized protocols [1], and expanded nursing autonomy [16] is recommended for sustainable PHC development. Future research should focus on long-term outcome evaluation and economic cost-effectiveness analysis, as recommended in international health workforce studies [8,30].

References

1. McCullough K., Andrew L., Genoni A., et al. An examination of primary health care nursing service evaluation using the Donabedian model: a systematic review. *Res Nurs Health.* 2023;46(1):159–176.
2. Keleher H., Parker R., Abdulwadud O., Francis K. Systematic review of the effectiveness of primary care nursing. *Int J Nurs Pract.* 2009;15(1):16–24.
3. Effectiveness of registered nurses on patient outcomes in primary care: a systematic review. *BMC Health Serv Res.* 2022.
4. Abdikadirova I., Yermukhanova L., Blaževičiene A., et al. Patient satisfaction with the expanded nurses service in primary health care: evidence from Kazakhstan. *Healthcare (Basel).* 2025;13(24):3314.
5. Nursing practice in primary care and patients' experience of care. *PubMed.* 2018.
6. Vaughan C., Lukewich J., Mathews M., et al. Nursing contributions to virtual models of care in primary care: a scoping review protocol. *BMJ Open.* 2022;12(9):e065779.
7. Côté N., Freeman A., Jean E., et al. New understanding of primary health care nurse practitioner role optimisation. *BMC Health Serv Res.* 2019;19:882.

8. Horton M., Dixon J., Turi E., et al. Advanced practice nurses in primary care and their impact on health services utilisation, costs and access globally: a scoping review. *J Clin Nurs.* 2025;34(5):1592–1601.

9. Pullen C., Edwards J.B., Lenz C.L., Alley N. A comprehensive primary health care delivery model. *J Prof Nurs.* 1994;10(4):201–208.

10. Abukari K., Petrucka P.M. A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nurs.* 2021;20:158.

11. Muldoon L.K., Hogg W.E., Levitt M. Primary care (PC) and primary health care (PHC): what's the difference? *Can J Public Health.* 2006;87(5):409–411.

12. National Academies of Sciences, Engineering, and Medicine. *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care.* Washington, D.C.: National Academies Press; 2021.

13. Sav A., Kendall E., McMillan S.S., et al. *Reforming primary health care: research informing nurse practitioner policy.* J Clin Nurs. 2016.

14. Swan M., Ferguson S., Chang A., Larson E., Smaldone A. Quality and safety outcomes of nurse-managed care: a systematic review. *Int J Nurs Stud.* 2015.

15. Poghosyan L., Lucero R.J., Rauch D.A., Berkowitz B. Nurse practitioner organizational climate in primary care settings: implications for professional practice. *J Prof Nurs.* 2017.

16. Laurant M., van der Biezen M., Wijers N., et al. Nurses as substitutes for doctors in primary care. *Cochrane Database Syst Rev.* 2018.

17. Horrocks S., Anderson E., Salisbury C. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *BMJ.* 2002.

18. Xue Y., Ye Z., Brewer C., Spetz J. Impact of nurse practitioners on health outcomes of Medicare and Medicaid patients. *Med Care Res Rev.* 2016.

19. Poghosyan L., Ghaffari-Rafi A., et al. Relationship of nurse practitioners' collaboration with physicians to patient outcomes. *Med Care Res Rev.* 2019.

20. Canadian Nurse Practitioner Initiative. *Primary Health Care Performance Measurement Framework for NPs.* 2019.

21. Carter N., et al. Policy implications of the role and practice of advanced nurse practitioners. *J Health Serv Res Policy.* 2009.

22. Horvat L., Horey D., Romios P., Kis-Rigo J. Cultural competence education for health professionals. *Cochrane Database Syst Rev.* 2014.

23. Poghosyan L., Nichols E., Martin-Misener R., et al. Primary care providers' perspectives on nurse practitioner role. *Int J Nurs Stud.* 2018.

24. Williams A.M., Irurita V.F., et al. Patient outcomes and nurse practitioner care: a systematic review. *J Am Acad Nurse Pract.* 2011.

25. Shaw T., Isham L., Colquhoun M., et al. Evaluating the impact of nursing in community care. *J Adv Nurs.* 2018.

26. Lovink M., Raine R., De Brún A., et al. Collaborative care and case management in primary care for adults with chronic conditions. *Health Serv Res.* 2017.

27. Sibbald B., Laurant M., Scott A. *Role of nurses in primary care.* Policy Reviews; 2016.

28. Kim M.N., Lee A., Lee S. Patient-centered care interventions on patient outcomes. *BMC Health Serv Res.* 2020.

29. Drennan V.M., Griffiths P. *Workforce skill mix and task shifting in primary care.* Int J Nurs Stud. 2015.

30. Buerhaus P.I., Skinner L.E., Auerbach D.I., Staiger D.O. Four challenges facing the nursing workforce in the United States. *J Nurs Regul.* 2017.