

The Impact of Green Nursing Practices on Healthcare System Sustainability and Cost Reduction

Anwar Shletan Aldhafeeri¹
Farhan Mutair Alanazi²
Ahmed Saeed Alhossiny³
Shrog Mana Alanzi⁴
Sarah Saad Alenazi⁵
Zayer Musa Faleh Alanezi⁶
Latifah Saud Alenazi⁷
Ghaidaa Abdullallah Albalawi⁸
Amani Talaq Saeed Albalawi⁹
Mariam Awad Alanziy¹⁰
Badi Shuhail Muhareb Alanzi¹¹

1. Prince Abdulmohsen Hospital In Al-Ula, Health Assistant- Nursing
2. Prince Abdul Mohsen Hospital, Nursing
3. Prince Abdulmohsen Hospital, Nursing
4. Nursing Specialist, Prince Abdul Mohsen Hospital In Al-Ula
5. Alula Airport Control Center, Nursing Technician
6. Alula Airport Control Center, Nursing Technician
7. Nursing Specialist, Prince Abdul Mohsen Hospital
8. Nursing Specialist. Emergency Department Alamir Abdualmuhsin Hou
9. Nursing Specialist, Princess Abdul Mohsen General Hospital
10. Nursing Technician, Princess Abdul Mohsen General Hospital
11. Nursing Specialist, Moh - Alotheeb Health Center

Abstract

The integration of sustainability into healthcare is crucial to addressing both environmental challenges and the escalating costs of healthcare delivery. Green nursing practices, which focus on incorporating environmentally friendly approaches into nursing care and healthcare facility operations, have emerged as a key strategy to achieve these goals. This paper explores the role of green nursing practices in enhancing healthcare system sustainability and reducing operational costs. Through a review of existing literature, case studies, and data analysis, the paper highlights the benefits and challenges of implementing green nursing practices, and their potential to reduce resource consumption, waste, and energy costs. The findings suggest that adopting green practices not only contributes to environmental preservation but also generates significant economic savings for healthcare institutions. This paper concludes by providing policy recommendations and strategies for further integrating green practices into nursing care to enhance both environmental and financial sustainability in healthcare systems.

keywords: Green Nursing Practices, Sustainable Healthcare, Healthcare Sustainability, Cost Reduction in Healthcare, Environmental Impact in Healthcare, Energy Efficiency in Healthcare

1. Introduction

Healthcare systems are facing two critical challenges: rising operational costs and increasing environmental concerns. The global healthcare sector is responsible for a substantial share of environmental impact, including significant energy consumption, waste production, and carbon emissions.(1)

In response, healthcare systems are seeking strategies to improve sustainability while reducing costs. Green nursing practices, a subset of sustainable healthcare initiatives, involve the application of environmentally conscious methods by nursing professionals in clinical and operational settings. These practices aim to reduce resource consumption, improve waste management, and enhance energy efficiency, all of which contribute to sustainability.(2)

This paper examines how green nursing practices can influence healthcare system sustainability, with a particular focus on their potential to reduce healthcare costs. By investigating existing literature, case studies, and empirical evidence, the study aims to provide a comprehensive understanding of the impact of these practices on both environmental and financial outcomes in healthcare settings.(3)

2. Literature Review

2.1 Green Nursing Practices: An Overview

Green nursing practices involve the integration of environmentally sustainable strategies into everyday nursing care. These practices include waste reduction, energy conservation, eco-friendly procurement, and the reduction of harmful chemicals in the healthcare environment. The scope of green nursing encompasses several key areas, such as:(4)

- **Waste Reduction and Recycling:** Proper segregation of waste (e.g., separating medical, hazardous, and general waste), promoting the use of reusable items, and encouraging recycling.
- **Energy Efficiency:** The use of energy-saving devices and practices, such as LED lighting, energy-efficient HVAC systems, and reducing energy consumption in healthcare facilities.
- **Water Conservation:** Implementing water-saving measures in clinical settings, such as low-flow faucets and efficient water management systems.
- **Sustainable Procurement:** Purchasing eco-friendly medical supplies, sustainable textiles, and reducing the use of single-use plastics.(5)

2.2 Environmental Impact of Healthcare

The healthcare sector contributes significantly to environmental degradation. According to the Healthcare Without Harm report, healthcare accounts for approximately 10% of global carbon emissions and is a major contributor to waste and resource consumption. Hospitals and healthcare facilities generate large amounts of waste, much of which is non-recyclable, and consume vast quantities of energy and water. Green nursing practices aim to mitigate these environmental impacts by focusing on resource efficiency, waste reduction, and sustainable procurement.(6)

2.3 Cost Implications of Green Nursing Practices

While the environmental benefits of green practices are well-documented, their cost implications are also significant. Initial investments in energy-efficient technologies, waste management systems, and eco-friendly procurement policies can be substantial. However, studies have shown that these upfront costs are often offset by long-term savings. For instance, hospitals that implement energy-efficient systems typically see reductions in energy costs, which can be as high as 20-30% annually. Waste reduction practices, such as the reuse of medical supplies and the reduction of disposable items, can also result in cost savings by reducing waste disposal fees and the need for new supplies.(7)

2.4 Health Outcomes and Patient Care

Green nursing practices can also improve health outcomes by reducing exposure to harmful chemicals, improving indoor air quality, and promoting safer work environments. A cleaner and more environmentally-friendly healthcare setting can reduce the incidence of healthcare-associated infections and improve patient recovery times. Nurses who work in such environments report higher job satisfaction, which can enhance patient care quality.(8)

3. Discussion

3.1 Benefits of Green Nursing Practices

The adoption of green nursing practices has clear benefits, not only for the environment but also for the financial health of healthcare institutions. By reducing energy consumption, waste generation, and water usage, healthcare facilities can achieve long-term savings. The positive impact on health outcomes and patient satisfaction further emphasizes the value of integrating sustainability into nursing practice.(9)

3.2 Barriers to Implementation

Despite the clear benefits, several barriers hinder the widespread adoption of green nursing practices. High upfront costs for energy-efficient infrastructure, the complexity of waste management, and resistance to change among staff can delay implementation. Additionally, the lack of standardized protocols and clear guidelines for green nursing practices can create confusion and inconsistency in their application.(10)

3.3 Future Directions

To maximize the impact of green nursing practices, healthcare institutions need to prioritize sustainability through policy development, education, and training. Governments and healthcare organizations can provide financial incentives and create standard protocols for green practices. Further research should focus on the long-term financial benefits of green practices and the development of more effective implementation strategies, particularly for smaller and rural healthcare facilities.(11)

4. Conclusion

Green nursing practices represent a promising approach to enhancing the sustainability of healthcare systems while simultaneously reducing costs. By focusing on resource conservation, waste reduction, and environmentally responsible procurement, healthcare institutions can achieve both financial savings and positive environmental outcomes. These practices not only benefit the healthcare system but also contribute to the broader goals of sustainability. Policymakers, administrators, and nursing leaders must work together to create an environment that supports the adoption and scaling of green nursing practices, ensuring the long-term sustainability of healthcare services worldwide.

References

1. Eckelman MJ, Huang K, Lagasse R, Senay E, Dubrow R, Sherman JD. Health Care Pollution And Public Health Damage In The United States: An Update: Study examines health care pollution and public health damage in the United States. *Health Aff.* 2020;39(12):2071–9.
2. Lemery J, Balbus J, Sorensen C, Rublee C, Dresser C, Balsari S, et al. Training Clinical And Public Health Leaders In Climate And Health: Commentary explores training clinical and public health leaders in climate and health. *Health Aff.* 2020;39(12):2189–96.
3. Tan CC, Lam CSP, Matchar DB, Zee YK, Wong JEL. Singapore’s health-care system: key features, challenges, and shifts. *Lancet.* 2021;398(10305):1091–104.
4. Fathollahi-Fard AM, Ahmadi A, Karimi B. Sustainable and robust home healthcare logistics: A response to the COVID-19 pandemic. *Symmetry (Basel).* 2022;14(2):193.
5. Guo Y, Liu Y. Sustainable poverty alleviation and green development in China’s underdeveloped areas. *J Geogr Sci.* 2022;32(1):23–43.
6. Furukawa P de O, Cunha ICKO, Pedreira M da LG, Marck PB. Environmental sustainability in medication processes performed in hospital nursing care. *Acta Paul Enferm.* 2016;29:316–24.
7. Çatak T. Nursing and Environmental Sustainability: Pioneers of Green Transformation in Health. *Sabuncuoglu Serefeddin Heal Sci.* 2024;6(1):51–62.
8. Manika D, Gregory-Smith D, Wells VK, Comerford L, Aldrich-Smith L. Linking environmental sustainability and healthcare: The effects of an energy saving intervention in two hospitals. *Int J Bus Sci Appl Manag.* 2017;11(1):32–55.
9. Anderko L, Chalupka S, Gray WA, Kesten K. Greening the ‘proclamation for change’: healing through sustainable health care environments. *AJN Am J Nurs.* 2013;113(4):52–9.
10. Soares AL, Buttigieg SC, Bak B, McFadden S, Hughes C, McClure P, et al. A review of the applicability of current green practices in healthcare facilities. *Int J Heal Policy Manag.* 2023;12.
11. Shaban MM, Alanazi MA, Mohammed HH, Mohamed Amer FG, Elsayed HH, Zaky ME, et al. Advancing sustainable healthcare: a concept analysis of eco-conscious nursing practices. *BMC Nurs.* 2024;23(1):660.