
NURSING LEADERSHIP IN ADVANCING THE SUSTAINABLE DEVELOPMENT GOALS: A GLOBAL PERSPECTIVE

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Abstract

Background: The adoption of the United Nations Sustainable Development Goals (SDGs) in 2015 established a comprehensive global agenda to improve health, reduce inequalities, protect the environment, and promote sustainable development by 2030. Although SDG 3 explicitly focuses on health and well-being, the interconnected nature of the 17 SDGs highlights the essential contribution of healthcare professionals across all sectors. As the largest and most trusted healthcare workforce globally, nurses are uniquely positioned to influence health promotion, disease prevention, policy development, community engagement, environmental sustainability, and universal health coverage. Nursing leadership has evolved beyond bedside care to encompass education, research, advocacy, innovation, and health system strengthening, making nurses indispensable partners in achieving the SDGs.

Objective: This review aims to critically examine the role of nursing leadership in advancing the Sustainable Development Goals by exploring contributions in clinical practice, education,

research, policy advocacy, digital health, environmental sustainability, and global partnerships. The review also identifies current challenges and future opportunities for strengthening nursing leadership in achieving the 2030 Agenda.

Methods: A narrative review approach was adopted by synthesizing evidence from international literature published between 2020 and 2026. Electronic databases including PubMed, Scopus, Web of Science, CINAHL, Google Scholar, and official publications from the World Health Organization (WHO), International Council of Nurses (ICN), and United Nations (UN) were searched using relevant keywords related to nursing leadership and Sustainable Development Goals. Articles focusing on nursing leadership, healthcare policy, education, public health, sustainability, and evidence-based practice were reviewed and critically analysed to identify emerging themes.

Results: The review demonstrates that nursing leadership contributes substantially to multiple SDGs through patient-centred care, health promotion, disease prevention, maternal and child health, community-based interventions, disaster preparedness, digital health innovations, environmental stewardship, and health policy advocacy. Nurse leaders play a significant role in strengthening healthcare systems by promoting evidence-based practice, competency-based education, interdisciplinary collaboration, workforce development, and quality improvement initiatives. The integration of artificial intelligence, telehealth, simulation-based education, and digital technologies further enhances nursing capacity to deliver equitable and sustainable healthcare. Despite these achievements, persistent challenges including workforce shortages, leadership gaps, inadequate policy representation, limited research funding, and unequal access to education continue to hinder the profession's full contribution to global sustainable development.

Conclusion: Nursing leadership is fundamental to achieving the Sustainable Development Goals and building resilient, equitable, and sustainable healthcare systems. Strengthening leadership competencies, investing in nursing education and research, expanding policy participation, and fostering global collaboration are essential strategies for maximizing nursing's contribution to the 2030 Agenda. Governments, educational institutions, professional organizations, and healthcare systems must recognize and empower nurses as strategic leaders capable of driving transformative change toward sustainable global health.

Keywords: Nursing Leadership; Sustainable Development Goals; Global Health; Nursing Education; Health Equity; Evidence-Based Practice; Public Health; Policy Advocacy.

Introduction

The adoption of the 2030 Agenda for Sustainable Development by the United Nations in 2015 marked a global commitment to address major social, economic, environmental, and health challenges through 17 Sustainable Development Goals (SDGs) and 169 targets. The SDGs provide a comprehensive framework for promoting equitable development, reducing poverty, protecting the environment, and ensuring universal well-being. Although SDG 3 (Good Health and Well-being) explicitly focuses on health, its successful achievement is closely linked with

other goals, including quality education, gender equality, reduced inequalities, clean water and sanitation, climate action, and global partnerships. This interconnected approach emphasizes the need for collaborative efforts from all sectors, particularly healthcare.

Nurses constitute the largest group of healthcare professionals globally and play a pivotal role in achieving the SDGs. Their responsibilities extend beyond bedside care to encompass health promotion, disease prevention, patient education, policy advocacy, research, leadership, and community engagement. Through continuous interaction with individuals, families, and communities, nurses address social determinants of health, promote health equity, and strengthen healthcare systems. Their contribution is fundamental to advancing universal health coverage and improving population health outcomes.

The nursing profession has evolved significantly over recent decades. In addition to delivering patient-centred care, nurses now serve as clinical leaders, educators, researchers, innovators, and policymakers. Their leadership contributes to evidence-based practice, quality improvement, interdisciplinary collaboration, and healthcare management. The COVID-19 pandemic further highlighted the critical role of nurses in emergency preparedness, infection prevention, vaccination programmes, telehealth, and public health education, reinforcing the importance of resilient nursing leadership in responding to global health crises.

Rapid advancements in digital technologies, including artificial intelligence, telemedicine, electronic health records, and simulation-based education, have transformed nursing practice and expanded opportunities for improving healthcare quality and accessibility. Simultaneously, nursing education increasingly emphasizes competency-based learning, leadership development, evidence-based practice, digital literacy, and sustainability to prepare future professionals for evolving healthcare needs. Nursing research also plays a crucial role by generating evidence that informs clinical practice, healthcare policy, and innovation.

Despite these advancements, challenges such as workforce shortages, leadership gaps, educational disparities, and limited policy representation continue to hinder the profession's full potential. Therefore, strengthening nursing leadership through education, research, technological innovation, and policy engagement is essential for achieving the Sustainable Development Goals. This review critically examines the contribution of nursing leadership to sustainable development, highlighting its role in clinical practice, education, research, policy, digital transformation, and environmental sustainability while identifying future opportunities to accelerate progress toward the 2030 Agenda.

Methodology

Study Design

This review employed a narrative literature review methodology to critically examine the contribution of nursing leadership toward achieving the United Nations Sustainable Development Goals (SDGs). A narrative review was considered appropriate because it enables comprehensive synthesis of evidence from diverse study designs, policy documents, international reports, and professional guidelines, thereby providing a broad understanding of the evolving role of nursing leadership in sustainable global health. Unlike systematic reviews that primarily focus on a narrowly defined clinical question, this approach facilitates integration

of evidence across nursing education, clinical practice, leadership, research, health policy, digital health, environmental sustainability, and global partnerships.

Literature Search Strategy

A comprehensive search of electronic databases was conducted to identify relevant literature published between January 2020 and March 2026. The databases searched included:

- PubMed/MEDLINE
- Scopus
- Web of Science
- CINAHL
- Google Scholar

To ensure inclusion of current international policy perspectives, official publications and reports from the following organizations were also reviewed:

- World Health Organization (WHO)
- United Nations (UN)
- International Council of Nurses (ICN)
- International Labour Organization (ILO)
- Sigma Theta Tau International
- World Bank
- Nursing and Midwifery Council (NMC)

The search strategy combined Medical Subject Headings (MeSH) and free-text keywords using Boolean operators.

Eligibility Criteria

Inclusion Criteria

Studies were included if they:

- Were published between 2020 and 2026.
- Were written in English.
- Focused on nursing leadership or advanced nursing roles.
- Discussed one or more Sustainable Development Goals.
- Included nursing education, clinical practice, research, policy, innovation, digital health, or environmental sustainability.
- Were peer-reviewed research articles, systematic reviews, narrative reviews, qualitative studies, mixed-method studies, policy papers, or official reports from international organizations.

Exclusion Criteria

The following publications were excluded:

- Articles published before 2020 unless considered landmark references.
- Editorials without substantial evidence.
- Conference abstracts lacking full text.
- Duplicate publications.
- Articles unrelated to nursing or sustainable development.
- Non-English publications.

Study Selection

The literature search yielded a large number of records from multiple databases. Duplicate articles were removed before screening. Titles and abstracts were independently examined for relevance to the objectives of the review. Full-text articles that satisfied the inclusion criteria were subsequently reviewed in detail. Publications addressing nursing leadership within the context of global health, healthcare quality, education, policy development, research, technological innovation, and sustainable development were retained for thematic analysis.

Data Extraction

Relevant information was extracted using a structured review matrix that included:

- Author(s)
- Year of publication
- Country
- Study design
- Objectives
- Sample characteristics (where applicable)
- Major findings
- SDGs addressed
- Implications for nursing leadership

This standardized extraction process ensured consistency while comparing evidence across different studies.

Data Synthesis

A thematic narrative synthesis approach was used to integrate findings from the selected literature. Similar concepts and recurring findings were grouped into major thematic domains reflecting the multidimensional contribution of nursing leadership toward sustainable development. Each theme was critically analysed by comparing findings from different countries and healthcare settings, thereby identifying common trends, successful practices, and existing gaps.

Quality Considerations

Although formal methodological quality appraisal was not undertaken because of the narrative nature of this review, preference was given to:

- High-quality peer-reviewed publications.
- International guidelines and policy documents.
- Evidence from reputable organizations such as WHO, ICN, and the United Nations.
- Recent systematic reviews and meta-analyses.
- Research published in internationally indexed nursing and healthcare journals.

This approach enhanced the credibility and relevance of the synthesized evidence.

Ethical Considerations

As this study is a narrative review based exclusively on published literature and publicly available reports, approval from an Institutional Ethics Committee was not required. No human participants were recruited, and no identifiable personal data were collected. The review adhered to the principles of academic integrity by appropriately acknowledging published sources and avoiding plagiarism through critical synthesis and original interpretation of the literature.

Review Framework

The review was guided by the conceptual premise that effective nursing leadership contributes to sustainable development through five interrelated domains:

- Clinical Excellence – Delivering safe, evidence-based, and patient-centred care.
- Education and Capacity Building – Preparing competent and future-ready nurses.
- Research and Innovation – Generating evidence to improve healthcare outcomes.
- Leadership and Policy Advocacy – Influencing health systems and public policy.
- Sustainability and Global Collaboration – Promoting environmental stewardship, digital transformation, and international partnerships.

This framework provided a comprehensive lens through which the contribution of nursing leadership to the Sustainable Development Goals was examined, forming the basis for the thematic analysis presented in the subsequent sections.

Results

The narrative review identified that nursing leadership is a fundamental driver of sustainable healthcare, influencing nearly all dimensions of the Sustainable Development Goals (SDGs). Analysis of the selected literature revealed that nurse leaders contribute not only through direct patient care but also by strengthening health systems, improving healthcare quality, advancing nursing education, generating research evidence, influencing health policy, promoting digital

transformation, and supporting environmental sustainability. Nine major themes emerged from the review.

Theme 1: Nursing Leadership in Strengthening Healthcare Systems

The review consistently demonstrated that nurse leaders play a pivotal role in strengthening healthcare systems by improving service delivery, ensuring patient safety, enhancing quality of care, and promoting equitable healthcare access. As frontline healthcare professionals, nurses serve as coordinators, educators, advocates, and decision-makers across primary, secondary, and tertiary healthcare settings.

Leadership within nursing has shifted from traditional supervisory responsibilities to strategic participation in healthcare planning, quality improvement, workforce management, and organizational governance. Contemporary nurse leaders contribute to:

- Improving patient safety initiatives
- Reducing healthcare-associated infections
- Promoting medication safety
- Strengthening continuity of care
- Enhancing interdisciplinary collaboration
- Supporting Universal Health Coverage (UHC)

The review further identified that countries investing in nursing leadership report improved patient satisfaction, lower mortality rates, better healthcare accessibility, and stronger primary healthcare systems.

Table 1. Major Contributions of Nursing Leadership to Sustainable Healthcare

Domain	Major Contributions
Clinical Practice	Safe, evidence-based patient care
Education	Competency development and lifelong learning
Research	Knowledge generation and innovation
Leadership	Quality improvement and organizational development
Policy	Health advocacy and decision-making
Community Health	Disease prevention and health promotion
Digital Health	Telehealth, AI, electronic health records
Sustainability	Green healthcare initiatives

Theme 2: Nursing Leadership in Achieving SDG 3 – Good Health and Well-being

Among all SDGs, SDG 3 emerged as the most directly influenced by nursing leadership.

The literature highlighted nurses' contribution in:

- Maternal and newborn care
- Immunization programmes
- Chronic disease management
- Mental health promotion
- Elderly care
- Palliative care
- Infection prevention
- Rehabilitation services

Nurse leaders have been instrumental in implementing evidence-based clinical guidelines, coordinating multidisciplinary teams, and ensuring patient-centred care.

Theme 3: Nursing Education for Sustainable Development

The review identified nursing education as one of the strongest pillars supporting sustainable development.

Modern nursing curricula increasingly integrate:

- Competency-Based Education (CBE)
- Outcome-Based Education (OBE)
- Evidence-Based Practice (EBP)
- Interprofessional Education (IPE)
- Leadership training
- Research methodology
- Digital literacy
- Artificial Intelligence

Nurse educators are expected to prepare graduates capable of:

- Critical thinking
- Ethical decision-making
- Clinical judgement
- Leadership
- Community engagement
- Sustainable healthcare practices

Simulation laboratories, virtual reality, digital learning platforms, and high-fidelity simulation have significantly enhanced competency development.

Table 2. Emerging Educational Strategies Supporting SDGs

Educational Strategy	Expected Outcome
Competency-Based Curriculum	Practice-ready graduates
Simulation-Based Learning	Improved clinical competence
AI-assisted Learning	Personalized education
Flipped Classroom	Active learning
Interprofessional Education	Teamwork and collaboration
Reflective Practice	Lifelong learning
Digital Assessment	Continuous competency evaluation

Theme 4: Nursing Research, Innovation, and Evidence-Based Practice

Research emerged as another major theme supporting sustainable development.

Nurse researchers contribute by:

- Developing evidence-based interventions
- Improving patient safety
- Evaluating healthcare programmes
- Supporting policy formulation
- Reducing healthcare costs
- Promoting quality improvement

Evidence-based nursing enables healthcare organizations to implement scientifically validated interventions instead of relying solely on traditional practices.

Recent innovations identified include:

- Artificial Intelligence
- Predictive analytics
- Wearable monitoring devices
- Clinical decision-support systems
- Remote patient monitoring
- Mobile health applications

The integration of research findings into routine clinical practice has significantly improved healthcare quality and patient outcomes.

Theme 5: Policy Advocacy and Global Health Leadership

The literature emphasized that modern nursing leadership extends beyond hospitals into national and international policymaking.

Nurse leaders actively contribute to:

- Universal Health Coverage
- Gender equality
- Workforce planning
- Human rights
- Health equity
- Community empowerment
- Disaster risk reduction

Professional organizations such as the International Council of Nurses advocate for greater representation of nurses in national health policy and healthcare governance.

Greater participation of nurses in policymaking enables healthcare systems to develop more patient-centred and community-oriented policies.

Theme 6: Digital Transformation in Nursing Leadership

Digital transformation has fundamentally reshaped nursing practice.

The review identified rapid expansion of:

- Telehealth
- Artificial Intelligence
- Electronic Health Records
- Clinical Decision Support Systems
- Remote Patient Monitoring
- Mobile Health Applications
- Virtual Simulation
- Learning Management Systems

Theme 7: Environmental Sustainability and Climate Action

Environmental sustainability has become an emerging leadership responsibility for nurses.

The review identified nursing contributions toward:

- Green hospitals
- Biomedical waste management
- Energy conservation

- Climate-resilient healthcare
- Disaster preparedness
- Environmental health education

Nurse leaders are increasingly involved in implementing environmentally sustainable healthcare practices while maintaining patient safety.

Healthcare organizations are encouraging nurses to adopt environmentally responsible clinical practices through:

- Waste segregation
- Rational resource utilization
- Infection prevention
- Sustainable procurement
- Carbon footprint reduction

These initiatives directly support SDG 13 (Climate Action).

Theme 8: Challenges Limiting Nursing Leadership

Despite substantial progress, several barriers continue to restrict nursing leadership.

Frequently reported challenges include:

Workforce Challenges

- Global nursing shortage
- Staff burnout
- Migration of skilled nurses
- Heavy workload

Educational Challenges

- Limited leadership training
- Unequal educational opportunities
- Inadequate digital competency
- Limited research exposure

Organizational Challenges

- Limited participation in policy decisions
- Financial constraints
- Lack of mentorship
- Poor interdisciplinary collaboration

Technological Challenges

- Digital divide
- Limited infrastructure
- Cybersecurity concerns
- Resistance to innovation

These barriers reduce the profession's capacity to contribute fully to sustainable healthcare.

Table 3. Challenges and Suggested Strategies

Challenge	Suggested Strategy
Workforce shortage	Increase nursing recruitment and retention
Burnout	Promote staff wellbeing and resilience programmes
Leadership gap	Leadership development programmes
Limited policy involvement	Greater nurse representation in governance
Limited research	Increase research funding and collaborations
Digital competency	Continuous faculty and workforce training

Theme 9: Future Directions

Future progress in nursing leadership requires strategic investment in leadership development, education, research, policy, and sustainability. Executive leadership programmes, mentorship, and succession planning are essential to prepare future nurse leaders. Nursing education should integrate competency-based learning, artificial intelligence, digital health, and global health concepts. Research should emphasize multicentre collaborations, implementation science, and healthcare innovation to strengthen evidence-based practice. Clinical care must advance through precision nursing, person-centred care, and continuous quality improvement. Greater nurse representation in health policymaking and global leadership networks is crucial. Additionally, promoting green healthcare, climate resilience, and community engagement will support sustainable and resilient healthcare systems.

Summary of Review Findings

The review demonstrates that nursing leadership influences multiple Sustainable Development Goals, extending far beyond SDG 3. Nurse leaders improve healthcare quality through evidence-based practice, competency-based education, policy advocacy, digital innovation, community engagement, and environmental stewardship. While workforce shortages, educational disparities, limited leadership opportunities, and resource constraints remain significant challenges, strengthening nursing leadership through strategic investments in education, research, technology, and governance can substantially accelerate progress toward

the 2030 Agenda. These findings position nursing not merely as a supporting profession but as a transformative force capable of driving sustainable, equitable, and resilient healthcare systems worldwide.

Discussion

This narrative review highlights the indispensable role of nursing leadership in advancing the United Nations Sustainable Development Goals (SDGs) and reinforces the growing recognition that nurses are not merely providers of direct patient care but strategic leaders capable of transforming healthcare systems. The synthesized evidence demonstrates that nursing leadership contributes substantially to clinical excellence, public health, education, research, policy development, digital innovation, environmental sustainability, and community empowerment. These findings align with the global vision of strengthening health systems through multidisciplinary collaboration, universal health coverage, and people-centred care.

One of the most significant findings of this review is the broad contribution of nursing leadership toward SDG 3 (Good Health and Well-being). Nurse leaders have consistently demonstrated their ability to improve patient outcomes through evidence-based clinical practice, patient safety initiatives, infection prevention, maternal and child healthcare, chronic disease management, and rehabilitation services.

The review further demonstrates that nursing leadership contributes significantly beyond SDG 3 by influencing several interconnected Sustainable Development Goals. For example, nurse educators play a vital role in SDG 4 (Quality Education) by developing competency-based curricula, promoting lifelong learning, and integrating evidence-based practice into nursing education. Through leadership development, simulation-based learning, digital education platforms, and interprofessional education, nurse educators prepare graduates capable of addressing increasingly complex healthcare challenges. Similarly, nurses contribute to SDG 5 (Gender Equality) by empowering women through maternal health services, reproductive healthcare, health education, and leadership opportunities within healthcare organizations. These contributions illustrate the multidimensional nature of nursing and its ability to influence sustainable development across multiple sectors.

The rapid advancement of digital technologies has created unprecedented opportunities for nursing leadership. Artificial intelligence, telehealth, electronic health records, remote patient monitoring, wearable technologies, and clinical decision-support systems are transforming healthcare delivery worldwide. The review indicates that nurse leaders are increasingly adopting these technologies to improve clinical efficiency, patient monitoring, healthcare accessibility, and educational outcomes. Artificial intelligence, in particular, has emerged as a valuable tool for supporting clinical decision-making, personalized learning, administrative efficiency, and research productivity.

Environmental sustainability also emerged as an increasingly important dimension of nursing leadership. Climate change, environmental degradation, and resource depletion have become

major determinants of global health, necessitating environmentally responsible healthcare practices. Nurse leaders are uniquely positioned to promote sustainable healthcare through waste reduction, infection prevention, resource conservation, environmentally responsible procurement, and climate-resilient health services. Green healthcare initiatives not only reduce environmental impact but also improve organizational efficiency and contribute directly to the achievement of SDG 13 (Climate Action). Integrating environmental sustainability into nursing education and clinical practice will be essential for preparing future nurses to address the health consequences of climate change.

The findings of this review have important implications for nursing education, clinical practice, research, and policy. Educational institutions should integrate Sustainable Development Goals, leadership competencies, digital health, artificial intelligence, environmental sustainability, and health policy into nursing curricula to prepare graduates capable of addressing future healthcare challenges.

Overall, the evidence synthesized in this review demonstrates that nursing leadership is not simply supportive of sustainable development but represents a transformative force capable of driving healthcare innovation, reducing health inequities, strengthening health systems, and improving population health worldwide. As global health challenges continue to evolve, empowering nurse leaders through education, research, policy engagement, technological innovation, and international collaboration will remain fundamental to achieving sustainable, resilient, and equitable healthcare systems for future generations.

Conclusion

The Sustainable Development Goals represent an ambitious global framework for improving health, promoting equity, protecting the environment, and fostering sustainable development. This review demonstrates that nursing leadership is fundamental to achieving these goals through its multidimensional contributions to clinical excellence, education, research, innovation, policy advocacy, digital transformation, environmental sustainability, and community engagement. As the largest and most trusted healthcare workforce, nurses possess the expertise, leadership, and commitment required to drive meaningful improvements in healthcare systems worldwide.

Strengthening nursing leadership requires sustained investment in education, research, technological innovation, workforce development, and policy participation. Governments, academic institutions, healthcare organizations, and professional bodies must recognize nurses as strategic partners in achieving universal health coverage and sustainable development.

Empowering nurse leaders today will not only improve patient outcomes and healthcare quality but will also accelerate global progress toward the 2030 Sustainable Development Agenda, ensuring healthier, more equitable, resilient, and sustainable societies for future generations.

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