



Research Article

Development of Strategic Plans for Advancing Nursing in Korea

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ABSTRACT

Purpose: The aim of the study is to evaluate the current and prospective status of nursing in Korea and develop a strategic framework and plan to accommodate the increased demands on nurses in the changing health-care system.

Methods: This study used a mixed-methods approach including a literature review, an online survey with health-care consumers, expert panel interviews, and an analysis of strengths, weaknesses, opportunities, and threats to develop the strategic plans and framework.

Results: The vision of the strategic framework involved improving health and quality of life, and its mission was to elevate the status of Korea's nursing sector as a key health-care profession through high-quality and innovative nursing education, research, and practice. The five values in accordance with the mission and vision were innovation, creation, collaboration, excellence, and authenticity. Three strategic goals, namely, education, research, and practice, were identified, and 31 related strategic tasks were developed.

Conclusion: In response to the rising social demand for a paradigm shift in nursing care services, there is a need for advancements in nursing education, research, and practice in Korea. This study provide some recommendations to achieve these aims.

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Introduction

Recent changes in demographics and advancements in life sciences and biotechnology are driving a transformation of the paradigm of health care and disease control. South Korea is expected to become a superaged society by 2040, with elderly persons making up 32.3% of its entire population [1], and the major leading causes of death are cancer, heart diseases, and cerebrovascular diseases [2]. Facing with aging society and chronicity of the disease in Korea, paradigm of health care has been shifting from cure to care, focusing on predictive, personalized, preventive, and participatory, which is known as “P4 medicine” [3].

The emerging concept of P4 medicine was first introduced by Leroy Hood et al [4], Weston and Hood [5], and other pioneers of

system medicine in 2004, and its importance has been continuously emphasized by the National Institutes of Health [6]. P4 medicine is a new way to approach the provision of health-care services [3], which will be “personalized” with the genetic information of each individual and “predictive” because the personalized information will allow to determine the risk of certain diseases for each individual. Furthermore, given the prediction of risks in human health, health care will be “preventive.” Future health care will also be “participatory,” as the participation of patients in sharing data, education, and decision-making on health-related issues will become more crucial in the health-care system.

Technological advancements of the Fourth Industrial Revolution (4IR), such as the Internet of Things, wearable devices, implantation, artificial intelligence, decision-making, and 3D printing, are predicted to break down the conventional boundaries of health care, expanding its scope to include antiaging, wellness, and health management [7]. The Korean Ministry of Health and Welfare has set out a policy agenda for 2017, aimed at promoting the growth of health-care industries and patient-centered medical services and strengthening universal health coverage and sustainability [8]. Accordingly, innovative and flexible systems are needed to produce a nursing workforce with strengthened capacities, which are

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capable of responding to changes, with an emphasis on nursing education [7].

Challenged with the aforementioned sociodemographic, political, and technological changes, the nursing profession requires new insights and visions to take leadership in health care for the future. Thus, the aim of this article is to evaluate the current and prospective status of nursing in Korea and develop a strategic framework and plans to accommodate the increased demands on nurses in changing health-care environment. The specific aims of the study are (1) to identify the mission, vision, and strategies of nursing associations and research institutes in Korea and other countries, (2) to explain public perceptions of nurses' roles, (3) to explore new roles of nurses, and finally (4) to develop strategic plans and a framework representing the key elements required to advance nursing in Korea.

Methods

Study design

This study used a mixed-methods approach. Four different designs were implemented based on study purposes: (1) literature review to evaluate the mission, vision, and strategies of nursing institutions, (2) cross-sectional survey (online) to explore public perceptions of nurses' roles, (3) focus group interviews (qualitative design) to identify new roles of nurses in Korea, and (4) critical analysis of the results from the previous three steps to develop strategic plans and framework.

Study procedure and data collection

The study was conducted in four stages. First, a literature review was conducted to evaluate the mission, vision, and strategies of nursing associations and research institutes in Korea and other countries, including the United States (US), Canada, the United Kingdom (UK), Australia, and Hong Kong. Second, an online survey with health-care consumers was conducted to understand public perceptions on nurses' roles. Third, expert panel interviews were used to obtain the opinions of experts regarding new roles of nurses in Korea. Finally, we proposed strategic plans and a framework to advance nursing in Korea based on an analysis of strengths, weaknesses, opportunities, and threats (SWOT) with the aim to strengthen Korean nurses' social responsibility.

Literature review

This study investigated the mission, vision, and strategies of nursing associations including the International Council of Nurses [9], American Nurses Association [10], National Institute of Nursing Research [11], Canadian Nurses Association [12], Royal College of Nursing of the UK [13], Australian Nursing and Midwifery Federation [14], and Korean Nurses Association, as well as 14 nursing research institutes in Korea and other 14 top-ranked nursing research institutes in the US, Canada, the UK, Australia, and Hong Kong. All relevant documents on mission, vision, and strategies of these organizations were collected and analyzed, and the search was limited to the most recently published sources.

Online survey

Participants in the online survey included 203 health-care consumers who were involved in activities of the Consolidation for Medical Consumer, Korea National Council of Consumer Organizations, and Consumers Korea. The data collection period was from October 1, 2017, to November 4, 2017. The participants voluntarily completed a web-based questionnaire developed by researchers.

The questionnaire included open-ended questions regarding health-care consumers' perceptions of nurses' roles. The key questions were "How often do you experience the following roles of nurses?" and "How satisfied are you with the following roles of nurses?" Each question included a list of nurses' roles (i.e., health-care provider, counselor, educator, coordinator, health-care leader, patient advocate, and researcher) and a brief explanation of each role. The participants were asked to rate items on a 5-item Likert scale ranging from 1 (always) to 5 (never). Finally, the participants were asked to choose the three most important nursing roles in the future and prioritize their relative importance. The participants' general characteristics included age, gender, region, monthly household income, and type of insurance. Analyses were conducted using STATA version 13 (StataCorp LP., College Station, TX, USA).

Expert panel interviews

A qualitative focus group technique was applied to address and explore the new roles of nurses in Korea based on the opinion of expert panels. Qualitative data were collected in September and October 2017 using audio recordings. The expert panel consisted of a total of 19 experts: eight experts from nursing or health-care research institutes, five academic experts including deans and faculty members, three nurse executives, and three experts from professional nursing organizations. The panel received a question list in advance with the description of P4 medicine.

A total of four expert panel interviews were conducted. The number of participants in each session ranged from four to five and involved a mixture of professionals. The discussion was planned to involve three steps: introduction with explanation of the objectives of the expert panel interview, discussion, and conclusions of the group discussion. The researcher's main task was to ensure that the participants discussed the topic and pose attendant questions. The opening question was "Would you please tell about your thoughts on the new roles of nurses in a changing health-care environment?" The opening question was followed by more questions aimed at getting the participants to present their opinions about the new emerging nursing roles or the roles expected to be improved and/or transformed in response to changes in health-care systems. Each expert panel interview lasted two hours and was audiotaped on a digital recorder. During the interviews, field notes were taken by two researchers.

After each session, the interview was transcribed verbatim. To ensure data accuracy, the researchers reviewed all the transcripts while listening to the recorded interviews. The complete transcripts of discussions were sent to each expert panel for review within 1 week after completion of their interview, and any queries on transcripts were directly clarified by the participants. The final transcripts were read carefully and systematically coded with the subcategories of P4 medicine, and the coding was verified using the original interview data by the research team.

Research team workshop for SWOT analysis

The SWOT strategic planning analysis was used to identify all positive and negative elements that may affect new proposed actions of nurses in Korea. First, data for the SWOT analysis were extracted from the results of the literature review, health-care consumer survey, and expert panel interviews. Second, 2×2 matrices were used with the lists of strengths and weaknesses in the first two rows and the list of opportunities and threats in the second row [15]. Internal factors were identified and categorized as strengths (positive) and weaknesses (negative), whereas external factors were categorized as opportunities (positive) and threats (negative). Third, authors proposed strategies for taking advantage of current opportunities and strengths. Authors also proposed strategies to convert weaknesses and threats into opportunities or

Table 1 Review of Mission, Vision, and Strategies of Internal and Domestic Nursing Institutions.

Categories		Mission and vision	Strategies
International perspectives	Nursing association	• Represent nurses' voice • Influence global policy • Enhance collaborative partnership • Promote excellence in practice • Improve health and quality of life of individuals, families, and communities • Strengthen nursing leadership • Meet the needs of the public	• Developing innovative health-care technology • Improving strategic leadership • Advocating healthy public policy provincially/territorially, nationally, and internationally • Collaborating with multidisciplinary workforces • Innovating nursing education • Diversifying business and revenue-generating opportunities • Increasing recognition of the value of the nursing profession • Achieving social justice
	Nursing research institute	• Produce high-quality and high-impact research • Optimize health and well-being of all people: equity • Address the health challenges we encounter today	• Networking researchers, practitioners, educators, service users, and policy-makers • Promoting interdisciplinary collaboration and partnership • Translating nursing research into practice for evidence-based practice • Maintaining the continuum of settings, diseases, and life span • Training new nurses to perform independent research • Enhancing research capacity in innovation and creativity • Enhancing expertise as nursing administrators and leaders • Establishing an organizational structure of the association, which drives policy-related activities in relation to legal and institutional frameworks
Domestic (Korean) perspectives	Nursing association	• Cultivate the culture, "Happy nurses, happy people"	• Expanding members' benefits, reinforcing system for promotion, and providing better education for members • Facilitating a healthy organizational culture in the nursing workforce • Establishing a nursing structure to reunify Korean nurses • Elevating Korean nursing and standards at the international level based on Korean nursing history
	Nursing research institute	• Improve, safeguard, and promote public health • Advance nursing theory and nursing as an academic discipline • Develop and propose nursing policy • Be sensitive toward current health issues • Promote clinical and nursing practices	• Expanding research interests in nursing practices, education, and evidence-based practice • Testing the effects and efficiency of managing patients with chronic conditions, promoting home care, and managing public health • Diversifying nursing research workforce through continuing education • Developing nursing and health-care policies • Developing clinical application of cutting-edge medical technologies, managing nursing information systems, and generating relevant policies [Korean-specific] • Training prospective researchers for evidence-based practice and health-related biobehavioral research • Exploring rehabilitation, community nursing, mental health, children, and gerontological care • Developing a Nursing Practice Act and assessing its effects

minimize weaknesses and threats [15]. Each strategy was categorized into education, research, and practice. In each category, we identified the goal. Subsequently, the research team developed a strategic framework including vision, mission, values, and strategic goals and plans based on the SWOT analysis to advance nursing in Korea. The strategy consultants specialized in management consulting monitored and evaluated the process of strategic framework development. Modifications were made based on advice from the consultants, and the final strategic framework was established.

Ethical considerations

Data collection began after obtaining approval from Yonsei University Health System institutional review board (Approval no. Y-2017-0023). The study was conducted in accordance with the Declaration of Helsinki. Before starting data collection, the participants were provided a full explanation of the purpose and processes of the study and a guarantee of confidentiality and anonymity of their data. They were also informed that participation was voluntary and that they had the right to withdraw at any time; subsequently, they signed the informed consent form. For the protection of the participants' anonymity, no personal information was collected in the survey or panel interviews, and the collected data were discarded after the study completion.

Results

Mission, vision, and strategies of nursing institutions

Table 1 presents the review of mission, vision, and strategies of nursing associations and research institutes from international and domestic perspectives. The missions and visions of international nursing institutes included promoting excellence in practice and addressing the health challenges currently encountered. In addition, there were some important strategies of collaboration among researchers, practitioners, educators, service users, and policy-makers and building research capacity in terms of innovation and creativity to achieve their missions and visions.

The slogan of the Korean Nurses Association is "Happy nurses, happy people," and the mission and visions of the 14 nursing research institutes in Korea included promoting public health; advancing nursing theory and nursing education; developing and proposing nursing policy; promoting health for patients with chronic conditions, the elderly, and adolescents; and promoting home care and hospice care. To achieve these objectives, developing nursing policies, creating a healthy organizational culture, and implementing nursing research on practices, education, and evidence-based practice are necessary strategies. The similarity between international nursing institutes and Korean nursing institutes is that they both aimed to meet the needs of current health issues. The main difference between them is that the international nursing institutes considered multidisciplinary or interdisciplinary

Table 2 Health-Care Consumer Survey (*N* = 203).

Characteristics	n (%)	Mean ± SD
Age (yrs)		
19–30	69 (33.9)	
31–40	72 (35.5)	
41–50	39 (19.2)	
51–60	18 (8.9)	
61 and above	5 (2.5)	
Gender		
Man	42 (20.7)	
Woman	161 (79.3)	
Residence		
Seoul	72 (35.5)	
Gyeonggi	89 (43.8)	
Daejeon	10 (4.9)	
Busan	15 (7.4)	
Other	17 (8.4)	
Monthly household income (won)		
< 3,000,000	42 (20.7)	
3,000,000–4,999,999	82 (40.4)	
5,000,000–6,999,999	56 (27.6)	
> 7,000,000	23 (11.3)	
Insurance coverage		
Health insurance	201 (99.0)	
Medical assistance	2 (1.0)	
Frequency of experience of nurses' roles		
Health-care provider		3.26 ± 1.10
Counselor		3.13 ± 1.09
Educator		2.95 ± 1.16
Coordinator		2.84 ± 1.13
Health-care leader		2.56 ± 1.08
Patient advocate		2.48 ± 1.12
Researcher		2.36 ± 1.06
Satisfaction with nurses' roles		
Health-care provider		3.62 ± 0.69
Counselor		3.38 ± 0.84
Educator		3.36 ± 0.79
Coordinator		3.19 ± 0.74
Health-care leader		3.07 ± 0.68
Patient advocate		3.07 ± 0.77
Researcher		3.01 ± 0.73

Note. SD = standard deviation; yrs = years.

1 USD = 1,080 won.

collaboration in health-care environment as important strategies to advance nursing science; however, Korean nursing institutions did not include such strategies.

Public perceptions of nurses' roles based on the online survey

A convenience sample of 203 health-care consumers aged between 19 and 62 years completed the online questionnaire (Table 2). Their mean age was 36.00 ± 10.27 years. Most of the participants lived in Gyeonggi (43.8%) and Seoul (35.5%), and the majority of them were women (79.3%).

Regarding the most frequent nurses' roles experienced by the participants (health-care consumers), the top three were health-care providers (3.26 ± 1.10), counselors (3.13 ± 1.09), and educators (2.95 ± 1.16) (Table 2). The participants were most satisfied with nurses who were health-care providers (3.62 ± 0.69), followed by counselors (3.38 ± 0.84) and educators (3.36 ± 0.79). In addition, regarding the ranking of expected future nurses' roles in order of importance, health-care provider (64.0%) was the most important, followed by counselor (11.8%) and educator (6.9%).

New roles of nurses expected from expert opinion

The summary of experts' opinions on new roles of nurses in Korea according to each P4 medicine category is presented in Table 3. Under the first P (predictive), the experts stated that

Table 3 Nineteen Expert Opinions on New Roles of Korean Nurses.

Domains	New roles of Korean nurses
Predictive	(Practice) • Forensic specialist • Health-care big data analyst • Ethical advocator • Genetic nursing researcher using big data (Education) • Integrating knowledge of arts and humanities subjects • Enhancing competencies in comprehensive data analysis • Training qualified nursing researcher (Policy) • Expanding nurses' roles in other professional areas • Increasing research on health-care law and policy • Generating nursing revenue • Ensuring appropriate numbers of nursing staff • Creating Bureau of Nursing Policy, Ministry of Health and Welfare
Personalized	(Practice) • Telehealth/U-health-care provider • Personalized health counselor • Nurses' cultural capacity • Developer of health-care–welfare integration model • Personalized health program developer (Education) • Encouraging creativity • Modeling convergent education (Research) • Establishing education systems implementing telemedicine • Driving R&D in consideration of feasibility in the market • Developing nurse business model
Preventive	(Practice) • Coordinator of early management for vulnerable population in conjunction with welfare services • Manager to assure quality of service and prevent patients' accidents • Specialist to screen diseases based on big data • Health-care technologist (medical/nursing equipment developers)
Participatory	(Practice) • Prehospital and posthospital care coordinator • Facilitator with emotional intelligence • Developer of nursing performance indices

Note. R&D = research and development; U-health-care = ubiquitous health care.

forensic nurses and health-care big data analysts would be the new roles for nurses in Korea in the future. Nurses would need to further their knowledge of arts and humanities subjects, enhance their competency in comprehensive data analysis, and train as qualified nursing researchers to handle the new roles listed previously. The experts also stated that there is a need to discuss and develop policies related to expanding the role of nursing professionals; increasing research on health-care law and policy, nursing revenue, and appropriate number of nursing staff; and creating a Bureau of Nursing Policy in Ministry of Health and Welfare to successfully generate new nursing roles in the future.

Under the second P (personalized), the experts stated that telehealth/ubiquitous health nurses and personalized health program developers would be new roles for nurses in Korea in the future. Nurses would need to be educated on nurturing creative talents, convergent education models, and establishing education systems for implementing telemedicine.

Under the third P (preventive), the experts proposed coordinators for early management of the vulnerable population, managers for service quality and prevention of patients' accidents, researchers for screening diseases using big data, and health-care technologists as new roles for nurses in Korea in the future. Finally, under the fourth P (participatory), the experts proposed nurses' participation in prehospital and posthospital care management,

Table 4 SWOT Analysis for Korean Nursing.

Strengths (internal, positive)	Weaknesses (internal, negative)
• Excellent nursing education • Quantitative growth of nursing research • Enhanced nursing standardization (JCI, QI) • Advanced health-care environment	• Difficulty to reform nursing education in timely manner • Insufficient quality research focusing on nursing practice • Insufficient role of nursing to resolve social issues • Lack of nursing policy aligned with national health-care policy (i.e., nursing cost, legal framework, and shortage of nursing staff) • Lack of infrastructure to support nursing research and policy systematically
Opportunities (external, positive)	Threats (external, negative)
• Changing health-care environment because of demographic changes and new disease patterns • Policy-driven strategy to turn health care into an industry • Health-care technology: expanding infrastructure for convergence research • Internationalized health care • Comprehensive nursing care services, government responsibility for patients with dementia	• No central control within the government to drive nursing policy • Other professional sectors making inroads into health-care areas • Insufficient governmental support for nursing-related R&D • Expanding roles of nursing-related professionals

Note. JCI = Joint Commission International; QI = quality improvement; R&D = research and development; SWOT = strengths, weaknesses, opportunities, and threats.

emotional intelligence facilitation, and development of nursing performance indices.

Strategic plans and framework for future nursing in Korea

As a result of the SWOT analysis, four strengths, five weaknesses, five opportunities, and four threats were generated (Table 4). The strengths included excellent nursing education and quantitative growth of nursing research. The opportunities include changing health-care environment because of demographic changes and new disease patterns and health-care technology. On the other hand, the weaknesses included lack of nursing policy aligned with national health-care policy (i.e., nursing cost, legal framework, and shortage of nursing staff) and lack of infrastructure to support nursing research and policy systematically. The threats included no central control within the government to drive nursing policy and expanded roles of nursing-related professionals.

Based on the results of the analysis, the strategic framework to advance nursing in Korea was established (Figure 1). The vision drawn from the strategic framework was to improve health and quality of life, and its mission was to elevate the status of Korea's nursing sector as a key health-care profession through excellence and innovation in nursing education, research, and practice. The five values in accordance with the mission and vision were innovation, creativity, collaboration, excellence, and authenticity. Authors also determined the three strategic goals through SWOT analysis, namely, education, research, and practice. Each strategic goal consisted of three to four strategic tasks; thus, 31 tasks were developed in total to advance Korea's nursing sector. The three strategic goals drawn from this study were to (1) innovate nursing education systems to train nursing leaders to meet the demands for the future, (2) improve the quality of research to incorporate social issues and develop research and development infrastructure, and (3) expand nursing roles in health-care policy.

Discussion

This was the first study to evaluate the current and prospective status of nursing in Korea and develop a strategic framework to advance the nursing profession in this country. The main findings of this study were that (1) the international nursing institutes, rather than the Korean nursing institutions, considered multidisciplinary collaboration as an important strategy to advance nursing science; (2) the most important roles of nurses reported by health-care consumers in Korea were of health-care providers and counselors in the future; and (3) the strategic framework including five values

and 31 strategic tasks using SWOT analysis was developed based on the expert panel interview.

First, to advance nursing education in accordance with the changing health-care system in Korea, developing a newly integrated nursing education curriculum and teaching/learning strategies that use information technology and nursing programs to prepare creative nursing professionals would be needed. As noted in the international nursing institute's strategies, a multidisciplinary approach in nursing education is needed to enhance both the competency of nurses in teamwork with other health-care professions and their awareness of the roles of multidisciplinary team members. In addition, educating nursing students to be morally "right" professionals would be essential. New technologies in the 4IR will allow us to facilitate quick diagnoses and precise treatment plans and manage chronic illnesses more effectively by using health-care data collected by new devices such as biometric sensors [16]. However, nursing professionals need to be aware that such 4IR technologies can have potentially negative results and raise ethical issues despite improvements in the ability to manage illness. To resolve these potential problems, it is needed to educate nursing students to develop values including creativity, empathy, and sense of responsibility.

There are several areas to expand future nursing research in Korea. First, research related to the improvement of quality of life of patients and cost effectiveness resulting from effective nursing care is essential. Second, research related to the development of health-care policy needs to cover the definition of nurses' roles and evaluation of nursing performance outcomes. Results from such research will guarantee the scope of nursing in health care and will thus allow nurses to voice their experiences and recommendations for future health-care delivery systems and policy development. Finally, more aggressive approaches to health-care research and development are crucial in nursing to achieve an expanded and advanced health-care delivery system in the 4IR.

Currently, most nursing studies in Korea are supported by the National Research Foundation of Korea, a grant organization that provides support for research in science, arts, and Korean culture in general, not specific to nursing. In the US, the National Institute of Nursing Research, as part of the US National Institutes of Health, is dedicated to promoting and improving the health of individuals, families, communities, and populations through the funding of nursing research and research training [11]. The National Institute of Nursing Research has proposed future research directions and played a leading role in nursing research in the US. To advance nursing research in Korea, it is crucial to establish a "control tower" to provide directions for nursing research, organize nursing

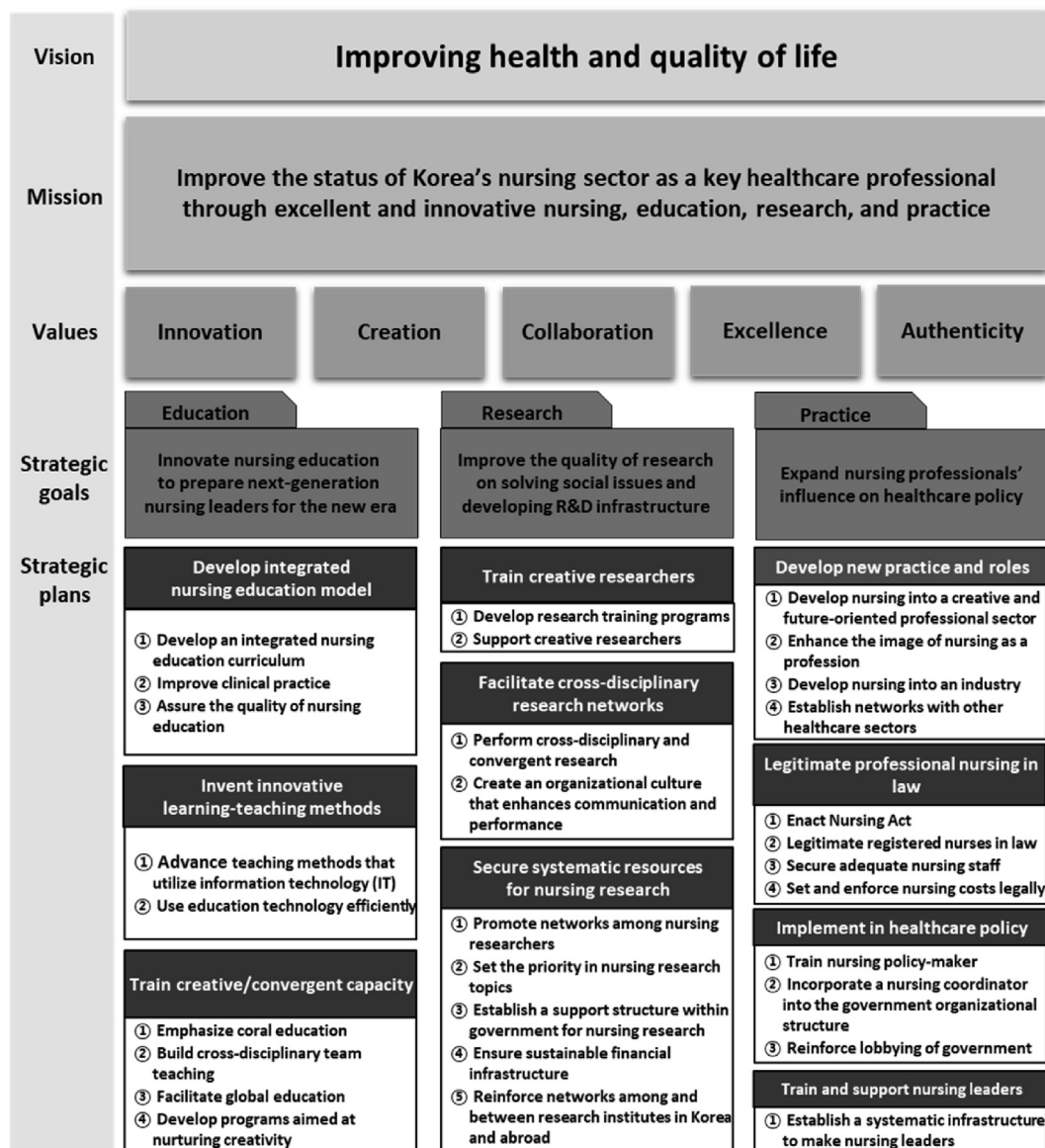


Figure 1. Strategic framework for advancing Korean nursing.
Note. R&D = research and development.

research and training funds, and develop a series of specific research priorities as new health challenges arise.

The study results suggest redefining the scope and functions of nursing in response to the changing health-care environment in Korea. The elderly population in Korea has steadily increased for the past 20 years [1]. In response to the increasing needs for advanced and comprehensive nursing care, the Integrated Nursing and Care Service Program was introduced in 2013 in Korea [17]. This program involves a new inpatient service model developed to provide better quality nursing care by increasing qualified nursing staff. The program aimed to solve the burden of care on family members and improve the quality of health-care services such as infection control [18]. Recent studies evaluating the Integrated Nursing and Care Service Program reported positive results for both patients and nursing outcomes [19–21]. However, the changes in demographics, health problems, and society require expanding the Integrated Nursing and Care Service Program. To successfully and efficiently provide comprehensive nursing care for patients, it is necessary to secure adequate nurse staffing levels through health-

care policies that improve the work environment for safe and effective health-care delivery [18].

The demand for a higher level of nursing care in acute care setting will continuously grow as illnesses become more complex and their severity increases. According to the Korean Medicine Law, the regulation of the system of advanced practice nurses (APNs) including 10 specialized areas started in 2003 [22], and new three specialized areas were added in 2006 [23]. While the roles of APNs in other countries have been advanced, the scope of practice and insurance coverage for the performance of APNs has not been legislated in Korea in 12 specialized areas (only home care has been covered) [23]. The lack of scope for APNs in the law leads to the narrowing down of their performance. Therefore, it is crucial to establish legal regulations for APNs defining the scope of their practice and specialized roles and define and develop fees for advanced nursing care services to provide specialized nursing care for patients with complex health-care needs. APNs in Korea will have a key role in promoting health and supporting patients during times of illness.

Conclusion

This study evaluated and compared the mission, vision, and strategies of nursing research institutes in Korea and other countries, explored public perceptions of nurses' current and future roles, and developed strategic plans to accommodate the increasing social demands on nursing care services in the changing health-care system in Korea. The findings of this study provide an overall guidance for Korean nursing institutions to innovate the nursing education system, improve the quality of research to incorporate social issues, and expand the professional roles of nurses in the health-care system. Multidimensional efforts must be continuously made to further develop nursing roles and advance the nursing profession in Korea.

Conflicts of interest

The authors declare no actual or potential conflicts of interests.

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Appendix A. Supplementary data

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References

1. The Ministry of Health and Welfare. The fourth national health plan (2016–2020). Sejong: The Ministry of Health and Welfare; 2015. Korean.
2. Lee J. Causes of death statistics in 2016. Daejeon: Statistics Korea; 2017. Korean.
3. Vogt H, Hofmann B, Getz L. The new holism: P4 systems medicine and the medicalization of health and life itself. *Med Health Care Philos*. 2016;19(2): 307–23. <https://doi.org/10.1007/s11019-016-9683-8>
4. Hood L, Heath JR, Phelps ME, Lin B. Systems biology and new technologies enable predictive and preventative medicine. *Science*. 2004;306(5696):640–3. <https://doi.org/10.1126/science.1104635>
5. Weston AD, Hood L. Systems biology, proteomics, and the future of health care: toward predictive, preventative, and personalized medicine. *J Proteome Res*. 2004;3(2):179–96. <https://doi.org/10.1021/pr0499693>
6. Flores M, Glusman G, Brogaard K, Price ND, Hood L. P4 medicine: how systems medicine will transform the healthcare sector and society. *Per Med*. 2013;10(6):565–76. <https://doi.org/10.2217/pme.13.57>
7. Jeong H, Choi Y, Lee S. Changes in the fourth industrial revolution and the paradigm of health industry. Osong: Korea Health Industry Development Institute; 2016. Korean.
8. The Ministry of Health and Welfare. Welfare Hub, greatly expanded from 980 to 2,100. Sejong: The Ministry of Health and Welfare; 2017. Korean.
9. International Council of Nurses. ICN strategic plan 2014–2018 [Internet]. Geneva, Switzerland: International Council of Nurses; 2014 [cited 2018 Jun 11]. Available from: https://www.icn.ch/sites/default/files/inline-files/ICN_Strategic_Plan_2014-2018.pdf
10. American Nurses Association. ANA strategic plan 2017–2020 [Internet]. Silver Spring, MD: American Nurses Association; 2016 [cited 2018 Jun 11]. Available from: <https://www.nursingworld.org/ana/about-ana/strategic-plan/>
11. National Institute of Nursing Research. NINR strategic plan: advancing science, improving lives [Internet]. Bethesda, MD: National Institute of Nursing Research; 2016 [cited 2018 Jun 11]. Available from: https://www.ninr.nih.gov/sites/files/docs/NINR_StratPlan2016_reduced.pdf
12. Canadian Nurses Association. 2016 Year in review Ottawa [Internet]. Ottawa, Canada: Canadian Nurses Association; 2017 [cited 2018 Jun 11]. Available from: https://www.cna-aic.ca/-/media/cna/page-content/pdf-en/annual-report-2016_e.pdf?la=en&hash=863A4C07A5EA003CADC09961476C709EF9ABC41B
13. Royal College of Nursing. Welcome to the royal College of nursing of the United Kingdom [Internet]. London, United Kingdom: Royal College of Nursing; 2017 [cited 2018 Jun 11]. Available from: <https://www.rcn.org.uk/-/media/royal-college-of-nursing/documents/publications/2015/november/005349.pdf>
14. Federation ANM. Strategic framework 2013–2017 [Internet]. Melbourne, Australia: Australian Nursing & Midwifery Federation; 2013 [cited 2018 Jun 11]. Available from: http://www.anmf.org.au/documents/ANMF_Strategic_Framework.pdf
15. Wehrich H. The TOWS matrix: a tool for situational analysis. *Long Range Plan*. 1982;15(2):54–66. [https://doi.org/10.1016/0024-6301\(82\)90120-0](https://doi.org/10.1016/0024-6301(82)90120-0)
16. Park HA. Are we ready for the fourth industrial revolution? *Yearb Med Inform*. 2016;25(1):1–3. <https://doi.org/10.15265/IY-2016-052>
17. Oh J. Integrated nursing and care service program [Internet]. Seoul, Korea: Seoul Metropolitan Government; 2017 [cited 2018 Jun 11]. Available from: <https://www.seoulsolution.kr/en/content/health-welfare-integrated-nursing-and-care-service-program>. Korean.
18. Kim J, Kim S, Park E, Jung S, Lee E. Policy issues and new direction for comprehensive nursing service in the national health insurance. *J Korean Acad Nurs Adm*. 2017;23(3):312–22. <https://doi.org/10.1111/jkana.2017.23.3.312>. Korean.
19. Shin SR, Park KY. Comparing satisfaction with nursing care and factors relevant to hospital revisit intent among hospitalized patients in comprehensive nursing care units and general care units. *J Korean Acad Nurs Adm*. 2015;21(5): 469–79. <https://doi.org/10.1111/jkana.2015.21.5.469>. Korean.
20. Choi HJ, Koh MS. Comparative study between the patients' satisfaction level of nursing service and revisiting intention of the inpatients according to the wards type. *Korean Assoc Health Med Sociol*. 2014;37:49–64. Korean.
21. Park BK, Boo EH, Lee CH, Ahn KH, Yoon HS, Hong NS, et al. Service outcome of comprehensive nursing care and policy direction. Goyang, Korea: NHIS Ilsan Hospital, Institute of Health Insurance & Clinical Research; 2015. Korean.
22. Kang Y. Development of advanced practice nurses in South Korea. *Appl Nurs Res*. 2005;18(4):226–7. <https://doi.org/10.1016/j.apnr.2005.07.003>
23. Seol M, Shin YA, Lim KC, Leem C, Choi JH, Jeong JS. Current status and vitalizing strategies of advanced practice nurses in Korea. *Perspect Nurs Sci*. 2017;14(1): 37–44. <https://doi.org/10.16952/pns.2017.14.1.37>. Korean.